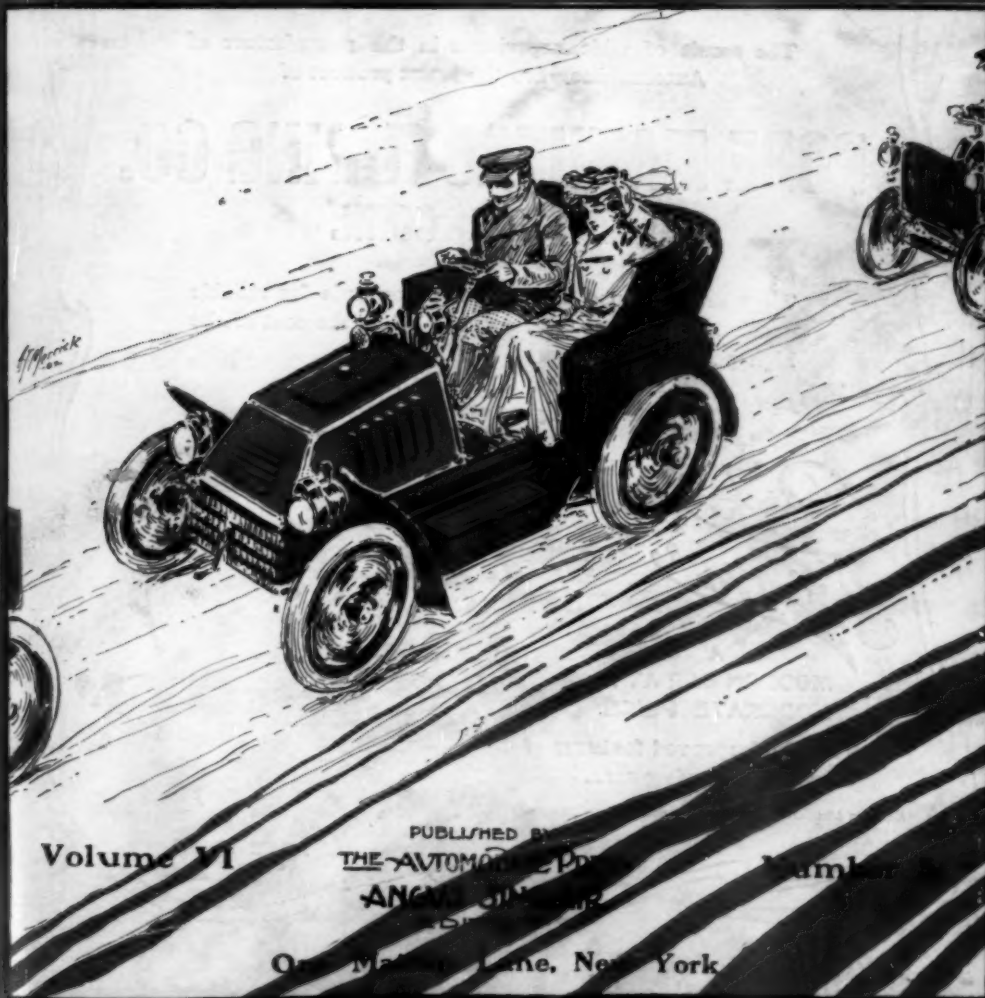


THE AUTOMOBILE MAGAZINE

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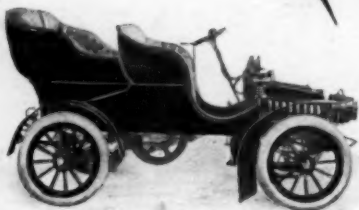


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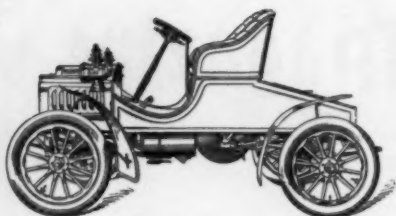
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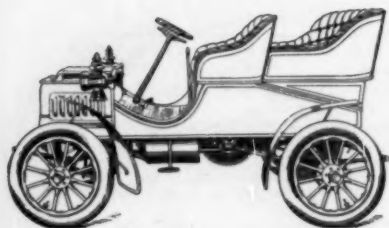
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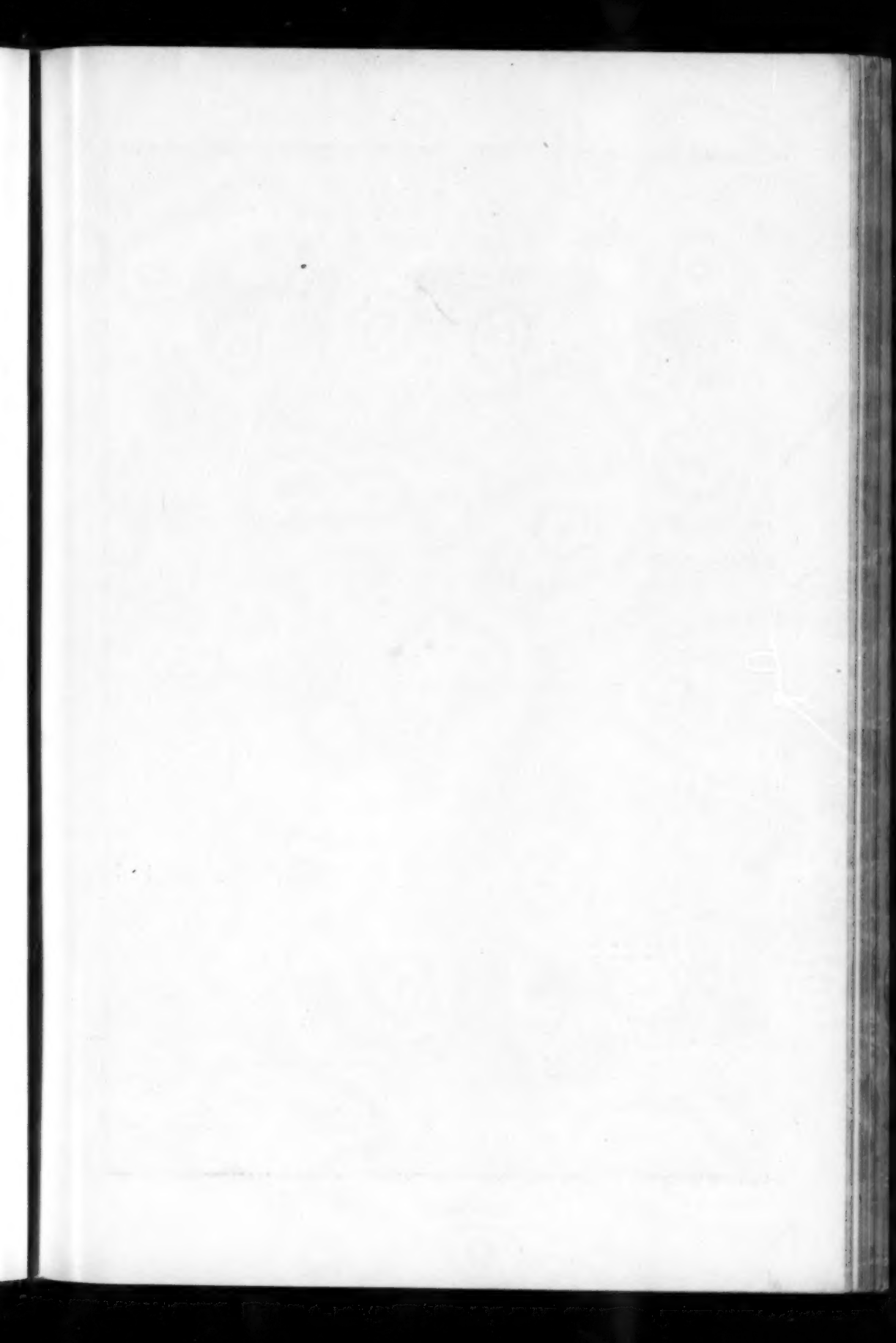
was unexcelled. The only one of its class to make all controls and finish on time, running every inch of the journey under its own power, it again proved that it was

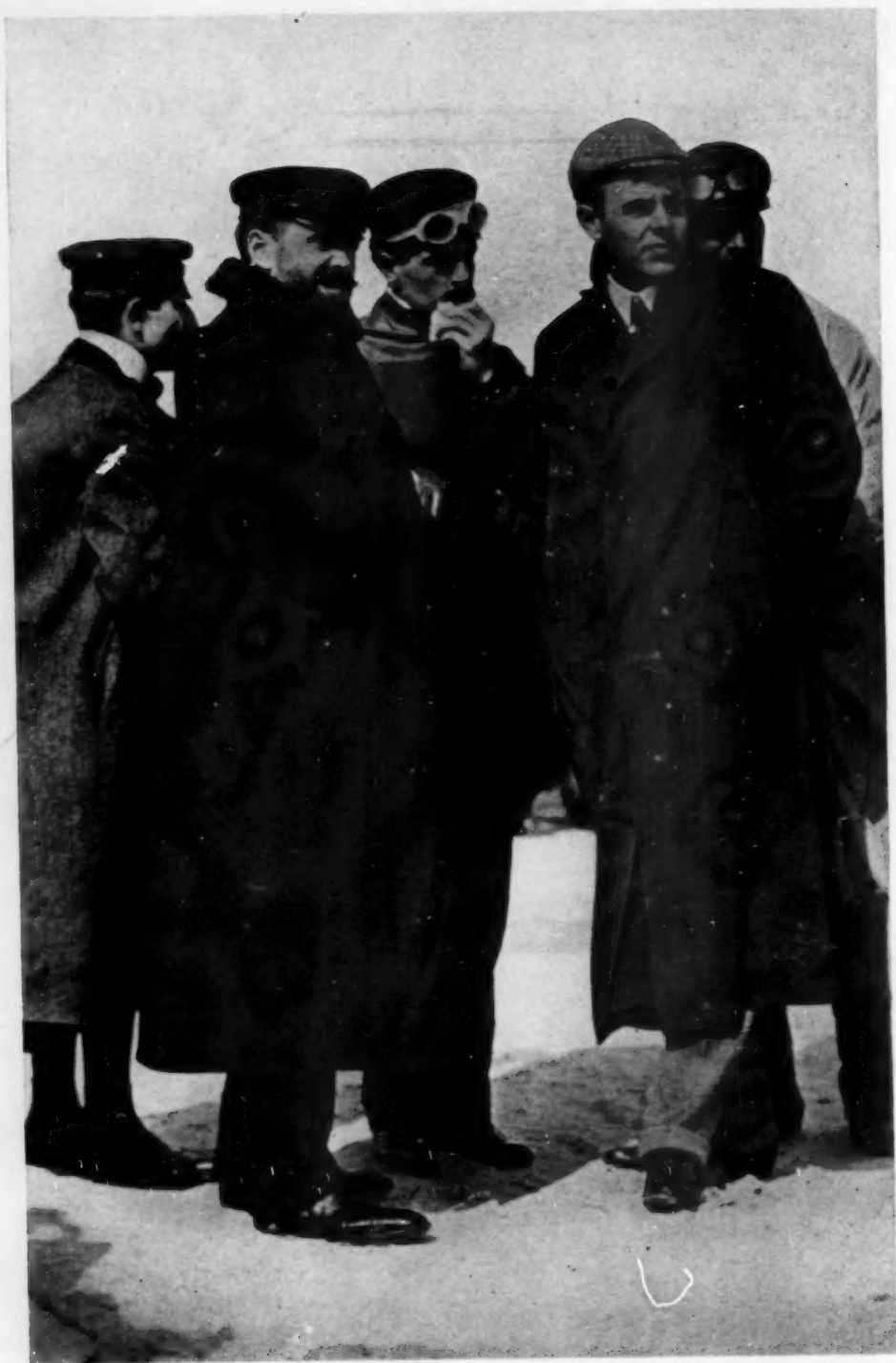
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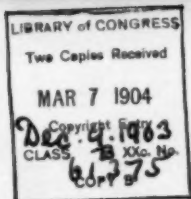
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THE AUTOMOBILE MAGAZINE

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MARCH, 1904

No. 3



W. K. VANDERBILT, JR.'s, lowering of the mile record to 39 seconds and his establishment of new figures up to fifty miles; Barney Oldfield's victory over the record-holder in the mile race for the American championship, added to a gathering of notable machines, notable drivers and notable people in public and social life at the premier straightaway race course of the world, combined to make the second annual tournament over the Ormond-Daytona Beach in Florida a flashing comet in the automobile firmament. In one year the meeting promoted by W. J. Morgan, the AUTOMOBILE MAGAZINE and the Florida East Coast Automobile Association, has assumed a place of world-wide importance in motordom, and the phenomenal success of the 1904 tournament promises unlimited possibilities for

the future of this the fastest course in the world.

Promoted with a view of giving fast machines and their owners a chance to go to the limit, the carnival furnishes a plethora of racing and record breaking of the gilt-edged order. Daring rides over this ideal course supplied figures that startled the world. The wonderful course of sugary sand, the enthusiastic operators, the speedy machines and the general tone of the affair as emphasized by the character and standing of those who were in attendance, both as spectators and participants, insure a marked page for the tournament in the history of American automobiling.

Imagine an unbroken stretch of sixteen miles of smooth, hard, and level beach with Old Ocean on one side and bare-looking sand dunes with scrubby



Visiting Daytonians

palms on the other, and you have an idea of the record-breaking course at Ormond. Even a 2,500-pound car failed to leave more than the faintest of wheel marks on the surface of this glittering ribbon of sand. Twice in every twenty-four hours the tide irons out any wrinkles or unevenness that may appear on the beach, so that at low tide it is ideal for fast driving. Motoring between the tumbling brine and the low sand hills causes a certain sense of lonesomeness

which tempts your appetite for speed. No fences or trees are there to flash by and increase the sense of your speed, but in their places glistens a wide expanse of wave-washed boulevard which guarantees you comparative freedom from danger in case of an accident to the machine. The breaking of a wheel might send the car and operator into the ocean for a bath in the shallow water, or it might result in the car going the other

way into the soft sand, where it must speedily come to a gradual stop. At Daytona there are two piers which extend out into the ocean, and through which the cars must be driven. These are the only drawbacks to the entire course, and these can easily be done away with by taking out a few more of the posts than were removed for the tournament last month.

The wind on the beach generally favors the record breaker as he skims



MR. DUMONT HEARS AN AMERICAN JOKE



VANDERBILT AND STEVENS

toward the south, since it invariably blows from the northeast, when it is of any force. The start this year was at Ormond on all but one day, when the tape was stretched at Daytona. The course then extended for sixteen miles past Daytona to the Mosquito Inlet lighthouse. At low tide the beach supplies 200 feet of perfect driveway, with another hundred which might be considered ideal if located anywhere else than in Florida.

Of the operators too much favorable mention cannot be made. Gentlemen, everyone of them, who spent their time and their money to further the interests of this strictly amateur affair. Such men as W. K. Vanderbilt, Jr.; H. L. Bowden, of Boston; S. B. Stevens, of Rome, N. Y.; Walter Christie, of New York; Louis S. Ross, of Boston; F. A. La Roche, W. Gould Brokaw, of New York; B. M. Shanley, Jr., of Newark, N. J.;

William Wallace, of Boston; Walter C. Baker and W. J. Hastings, of Cleveland; Hugh Willoughby, James L. Breese, were among the operators who furnished pleasure for those who attended the races.

It was a noticeable fact that all the operators, some of whom are men of great wealth, hastened to obey instructions from the officials, and did everything else that was conducive on their part to the success of the tournament. Many of these gentlemen had gone to the expense of a couple of thousand dollars or more to bring themselves and their cars to Florida. When one considers the transportation bills from other cities to the Peninsula State, the expenses incidental to

bringing a chauffeur and sometimes friends, as well as paying entrance fees, hotel bills, and other items, it will be understood why those who competed are entitled to praise for



Shanley's Decauville



M. G. Bernin in Brokaw's Renault

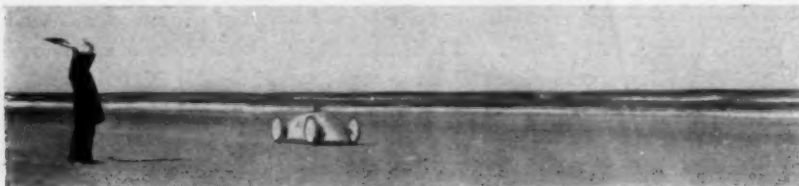
their well proven sportsmanship. Each day there were notable examples of good feeling that was encouraging to those interested in automobile competition. Mr. Shanley's willingness to start his Decauville car time and again when he knew it had no chance of winning on account of a worn-out clutch; the generous action of F. A. LaRoche in withdrawing his Darracq from the mile race, owing to a trivial accident that he knew would delay the start for ten or fifteen minutes; the Alphonse and Gaston-like solicitude displayed by Messrs. Bowden and Stevens whenever they met in a contest, and the cheerfulness with which Mr. Vanderbilt accepted his defeat by Oldfield in the A. A. A. championship, were incidents which won favorable comment from every one.

All those who competed are anxious for next year's affair in order that they may have another inning on the beach. The enthusiasm of the participants is best shown by the fact that during a

single evening a fund of more than \$3,500 was subscribed for the 1905 meet. At a dinner given by Mr. W. Gould Brokaw, with Mr. Vanderbilt as a guest of honor, the latter, after having been presented with a cup in commemoration of his securing the mile record, expressed his willingness to donate a trophy for a 100-mile race over the beach.

Mr. Vanderbilt was unquestionably the star of the meeting, since, barring his defeat in the mile A. A. A. championship, he scored a victory every time he started, and established a list of new records up to fifty miles, which demonstrated both the speed of the machine and the skill of its driver.

Next in importance to Mr. Vanderbilt was Barney Oldfield, whose defeat of Vanderbilt in the mile event was decisive and clean cut. The breaking of a crank shaft on his eight-cylinder racer, just after winning his heat in the five-mile A. A. A. championship contest, prevented his competing in other events and precluded any chance of a return contest with Vanderbilt. Although most of the records were made by foreign cars, the Oldfield's one win was considered an American victory of international importance. Viewing the matter coldly, it looked as though the Oldfield racer had more speed than the Vanderbilt one for a mile at least, so it was to be regretted that the eight-cylindere affair was dis-



BAKER ELECTRIC BREAKING MILE RECORD

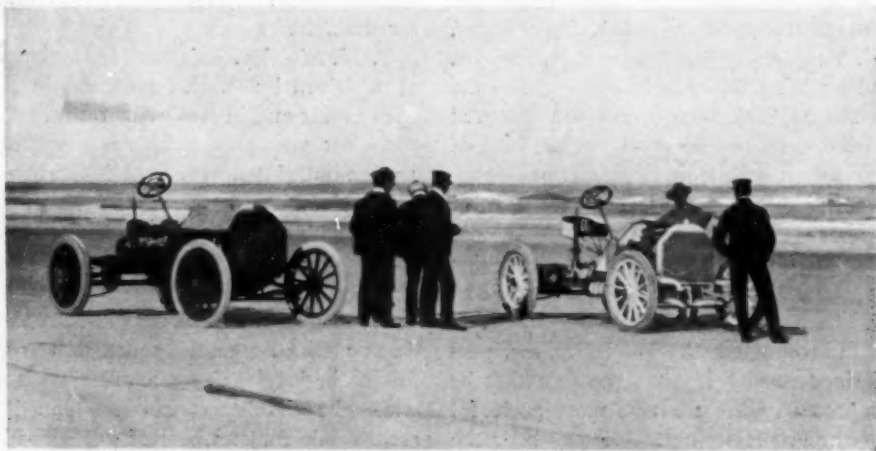


BETWEEN THE EVENTS

abled so early in the week as to prevent its racing at longer distances.

Of the machines entered, the 90 H. P. aluminum-covered Mercedes car, driven by W. K. Vanderbilt, Jr., performed the best. Apart from establishing a new world's record of 39 seconds for the mile, it carried the American sportsman to victory in every race in which he started,

with the sole exception of the mile event. His ten miles in 6.50, at the rate of 41 seconds to the mile, is phenomenal, while his fifty in 40.49½ over a ten-mile course, necessitating four turns, is speed of the railroad order. In all his trials Vanderbilt carried a mechanic, and at all times the big car was ready to start when called.



THE RIVAL MERCEDES-STEVENS' AND BOWDEN'S

Next in importance was the white Mercedes of 60 H. P., piloted by H. L. Bowden, the Boston representative, who negotiated fifteen miles in 10.18, or at the rate of $41\frac{1}{2}$ seconds for each mile. Mr. Bowden also captured four first prizes.

A car which was liable at any time to

fifteen miles in $12.51\frac{1}{2}$, which is a record for middleweight cars.

Considering that it is only a 40 H. P. machine and one that has been in use for two years, the Darracq, driven by F. A. LaRoche, went the course in creditable style. It finished second to Oldfield in the five-mile event, covering



JUDGES' STAND

beat the Daimler from Boston was the red Mercedes of 60 H. P., from Rome, N. Y., skilfully handled by S. B. Stevens, whom W. J. Morgan had brought to the beach as "unknown." Stevens captured two events, as well as the second heat of his match with Bowden, generously consenting to a postponement of the third heat, because his competitor's car was not at its best. Mr. Stevens drove his machine in the mile trials in $43\frac{3}{4}$ seconds.

The 30 H. P. Renault, driven by M. G. Bernin and by W. Gould Brokaw, performed remarkably well, but couldn't be expected to win from its more powerful brethren. It secured a victory over the Decauville in the match race, traveling

the distance at an average of $48\frac{1}{2}$ seconds for the mile.

B. M. Shanley, Jr.'s, 40 H. P. Decauville, driven by E. E. Fredericks in the open events and in the invitation races by its owner, worked as steady as usual, but a worn-out clutch prevented its winning.

Speed and endurance was shown by the Hercules motorcycle of G. H. Curtis and by the $1\frac{1}{2}$ H. P. Indian, which Oscar Hedstrom used when his regular racing machine got out of order. The Baker electric glided over the sands in a truly fascinating style, doing a mile in $1.00\frac{3}{4}$, while the Stanley runabout supplied a record mile for steamers of $55\frac{3}{4}$ seconds. Joseph Tracy, after working energet-



SOME OF THE GALLERY

ically for three days, secured a notable mile in 45 $\frac{3}{4}$ seconds with the Peerless racer, which bore out the truth of statements that had been made as to the speed of this vehicle. J. Insley Blair's 35 H. P. Panhard performed well, while the initial appearance of Walter Christie's car with its drive on the front wheels couldn't be considered other than a success. The work of Hugh Willoughby with an autocar of standard type was exceptionally good.

Always a favored resort for society people, Ormond and its hotels were crowded during the tournament as they never were before at that time of the year. It seemed as though all those whose names stand on the social register of New York and other cities had gathered at the meeting on the Florida shore to witness the speeding of power-driven machines. The Ormond Hotel, the Inn and the hotels at Daytona were filled to overflowing, and in many cases temporary accommodations had to be made by curtaining off parts of the halls. A large number of the officials and competitors brought their wives to Florida, which

gave a social tone to the affair not obtainable in any other way. Naturally such a gathering of folks high in social and public life resulted in many announcements of interests, including a statement by Mrs. Howard Gould that next year she would have a racing car entered for the tournament. So enthusiastic were some of the visitors that they reserved rooms at the Ormond Hotel for the week of the tournament next year.

To the officials and to the members of the Florida East Coast Automobile Association must be given great credit. Unfortunately W. J. Morgan, the leader of the entire affair, stepped in a post-hole on the beach on the first day of the tournament and sprained his ankle so



James L. Breese

badly as to necessitate his staying in the hotel during the entire tournament. From his room at the Ormond, however, he directed the meet. The local automobilists, fearing that their lack of experience might hamper the smooth running of the meeting, called to their assistance the A. A. A. officials present, who contributed more than their share toward the tournament's success. Excellent work was done by A. R. Pardington and S. A. Miles, the referees; Winthrop E. Scaritt, Angus Sinclair and Augustus Post, judges; S. M. Butler and Frank X. Mudd, timers; A. Picard,

fastest course for automobiles in the world; and that American amateurs are quite capable of piloting ponderous high-powered machines over it in record time. The secret of the great speed over this course lies in its absolute smoothness, for, to my mind, the finest track in America is only a country road when compared with the stretch of silvery sand that connects fair Ormond with picturesque Daytona.

With all the success that attended the tournament, as a competitive event it did not compare with other lines of sport. There was too little of a contest between the machines, thus plainly proving the growing need of some method of classification that will supply closer finishes.

Although the regular events did not start until Thursday, January 28, the previous day was such an ideal one for racing, and Messrs. Bowden and Stevens, as well as Messrs. Brokaw and Shanley, were



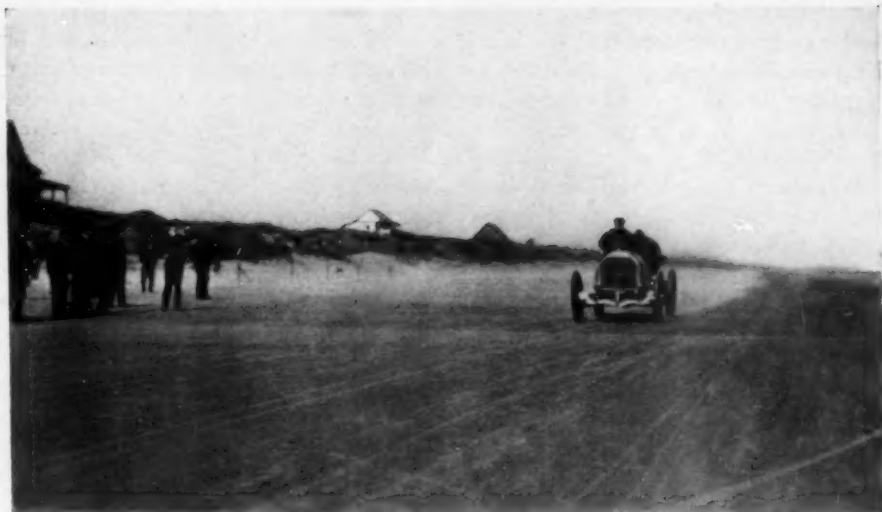
Walter Christie in Car Built by Himself

starter, and C. H. Gillette, clerk of course. At the conclusion of the tournament the Florida East Coast Automobile Association presented W. J. Morgan with a handsome gold watch and chain as a souvenir of the occasion.

Those kings of bonifaces, Messrs. Anderson & Price, managers of the Ormond Hotel, won the admiration of every one by their constant attention and universal courtesy to the visitors. They made all present feel like coming again.

The tournament demonstrates beyond any possibility of argument that in the Ormond-Daytona beach America has the

so anxious to settle the matches in which they were involved, that the officials decided to begin racing on Wednesday. After Mr. Brokaw's Renault, driven by M. G. Bernin, had disposed of the 40 H. P. Decauville, piloted by E. Fredericks, in two fifteen-mile heats, and H. L. Bowden with his 60 H. P. Mercedes had scored in the first heat of his fifteen-mile match with S. B. Stevens, who drove a car of duplicate power, W. K. Vanderbilt, Jr., requested permission to try for the mile record. Mr. Bowden in winning his race covered fifteen miles in 10.18, an average of 41½



W. K. VANDERBILT AT TOP SPEED

seconds for each mile, proving that the beach and weather were favorable for record-breaking.

Few who saw America's millionaire sportsman dash over the beach at terrific speed will forget the brief glimpses furnished, as the space-eating car dashed by a given point. Taking a start of about a mile, Mr. Vanderbilt and his modern distance-annihilator approached the tape at wonderful speed. Steady as the proverbial clock were the rhythmic explosions of the engine, while the young millionaire leaned over his steering wheel as though trying to urge on the ponderous bundle of aluminum-covered mechanism.

Drowning the sound of the tumbling brine as it passed the starting line, the staccato-like notes of the big Mercedes gave way to old ocean's roar as the car swept down the beach, leaving in its wake two thin trails of sugary sand.

"The record's broken!" shouted the enthusiasts, without giving a thought as to whether the claim was true.

Glasses enabled the lucky ones to view the record-seeker for the entire mile, and once only did he seem to swerve,

and that was when a wave, larger than usual, wandered high up the beach.

As it neared the finish, the big car began bounding as though trembling at its own speed, and Mr. Vanderbilt afterwards admitted that during the last quarter of a mile he was never on more than three wheels at any one time.

A hurried consultation of the timers showed that the mile had been covered in 39 seconds, clipping two fractions from the record made by Henry Ford on the ice in Michigan early in January, while, of course, it was a substantial cut of the 46 seconds made by Augieres on the Dourdan course in France.

The day was an ideal one for the making of fast time, there being a twenty-five-mile breeze from the northeast, while a bright sun cleared the atmosphere, so as to make carburetion almost perfect. The speed is at the rate of 125 feet a second, or 92½ miles an hour. This would mean from New York to San Francisco in about 32½ hours.

Ably handling his car, Barney Oldfield scored a signal victory over W. K. Vanderbilt, Jr., in the one-mile race for the A. A. A. championship on the second

day of the meeting. Rushing through the heavy mist that enveloped the beach, the quondam bicycle champion and his long racer landed a winner by about 125 yards, with S. M. Stevens shut clean out of the running. Vanderbilt captured the first heat in $48\frac{1}{2}$ seconds, with Bowden second, while Oldfield scored an easy victory in the second heat in 43 seconds, with Stevens about 100 yards behind.

Vanderbilt, Oldfield and Stevens lined up for the final, with the former on the pole, and, of course, protected in that position from getting the worst of any start. In the rolling start for the tape, Vanderbilt seemed to be waiting a bit, for he came down so slow that if Oldfield had crossed the tape at the same speed, Vanderbilt would have been able to jump him at the tape. Oldfield, however, threw out his switch, and slowed down until Vanderbilt was well ahead of him. Then Oldfield suddenly applied all his power, going by Vanderbilt just before the tape was reached. He was two lengths to the good as the gun was fired and going two lengths to Vanderbilt's one. At the quarter he was fifty yards in the lead, at which point Vanderbilt, who had been troubled with his fourth speed, managed to get squared away. The track champion continued to open up the gap, however, and at the finish

was about 125 yards ahead. Mr. Vanderbilt declined to make any excuses for his defeat, although he admitted that the first lead was gained while he was getting his fourth speed in working order.

The breaking of a crank-shaft on Oldfield's big racer after he had won a heat in the five-mile-free-for-all race, and was scheduled to go against Vanderbilt in the final event, detracted some the third day of the big tournament. Vanderbilt had scored a victory in the second heat in the five-mile event in 3.40 seconds, more than 8 seconds faster than Oldfield had gone when he won the first heat. Returning for the final, the crank-shaft on the Winton car broke near the fly wheel, and it was towed to Daytona. This barred Oldfield from future competitions, so Vanderbilt had no worthy competitor during the remainder of the week. Oldfield said that something broke on the machine in the heat, and he coasted the last mile. Then he turned to go back and the machine stopped running when he was half way up the beach. The slow time made by him in the heat was the result of carbureters flooding, Oldfield said. Vanderbilt captured the final heat of the race, his time being $3.31\frac{1}{2}$ seconds.

Later in the day a committee examined the eight-cylinder Winton and found it unfit for use, and Oldfield was notified that he could start in the fifty-mile event the next day with his smaller car if he so desired.

Apart from the five-mile-free-for-all, Vanderbilt won the five-mile and the one-mile invitation races, for gentlemen amateur drivers. H. L. Bowden won first prize in the 1.05 class, and also took first honors in the 56 seconds class.

Louis S. Ross with his 6



All Kinds of Spectators



FROM THE DUNES

H. P. Stanley steamer won the race for runabouts from H. L. Willoughby, who piloted an autocar. Mr. Stevens from scratch took the five-mile handicap.

Remarkable time in both the ten- and fifty-mile races were supplied by W. K. Vanderbilt, Jr., on the fourth day of the tournament. Over an ideal beach with a good breeze blowing, the daring driver captured the ten-mile invitation race in 6.50 at the rate of 41 seconds for each mile. While he believed faster time was made when he won the ten-mile American championship, owing to timing instruments short circuiting no time was taken. In the fifty-mile event Mr. Vanderbilt negotiated the distance over a ten-mile course, requiring four turns, in 40.49½ seconds, establishing new records en route.

During the twenty-mile handicap of the fourth day the only accident of the

meeting occurred, when M. W. Ehrlich, driving a 35 H. P. Panhard, endeavored to make a turn at the far end of the course without slowing his machine, with the result that the rear wheel broke and dropped the car to the sand. The driver was thrown to the ground, but he was clear of the car, which rolled over a couple of times before it lay a mass of wreckage on the beach. The detached wheel struck Ehrlich and dislocated his shoulder, while the goggles cut his face as he was dashed to the beach. He was able to be around again after a week's time.

The meeting finished on Monday, February 1, when the cars were sent against the kilometer and mile records. L. S. Ross with a Stanley steamer covered a mile in 55½ seconds, breaking George Cannon's record of 1.01, while W. J. Hastings with the Baker electric

"White Mouse" glided over the course in 1.00 $\frac{3}{4}$, supplanting the mark of 1.03 held by A. L. Riker. In covering the mile in 43 $\frac{3}{4}$ seconds with H. L. Bowden's Mercedes, Charles Basle, his chauffeur, equaled the world's kilometer record of 26 $\frac{3}{4}$ seconds, held by Stevens-Duryea.

The record-smashing and the phenomenal times made over the ideal course are clearly shown by the following summary of America's greatest automobile carnival:

First Day, January 27

SPECIAL MATCH RACE, FIFTEEN MILES, BEST TWO IN THREE HEATS.

First Heat.

1. M. G. Bernin, 30 H. P. Renault....No time taken.
2. E. Fredericks, 40 H. P. Decauville..No time taken.

Second Heat and Match.

1. M. G. Bernin, 30 H. P. Renault.....12.51 4-5
2. E. Fredericks, 40 H. P. Decauville.....12.53 4-5

Special Match Race, 15 Miles.

1. H. L. Bowden, 60 H. P. Mercedes.....10.18
2. S. B. Stevens, 60 H. P. Mercedes.....10.29

One-Mile Record Trial.

1. W. K. Vanderbilt, Jr., 90 H. P. Mercedes.. 0.39
- World's Record.

Second Day, January 28

ONE-MILE A. A. A. CHAMPIONSHIP.

First Heat.

1. W. K. Vanderbilt, Jr., 90 H. P. Mercedes.. 0.48 4-5
2. H. L. Bowden, 60 H. P. Mercedes..... 0.49 3-5
3. E. Fredericks, 40 H. P. Decauville..... 0.55 4-5

Second Heat.

1. Barney Oldfield, 120 H. P. Winton..... 0.43
 2. S. B. Stevens, 60 H. P. Mercedes..... 0.45 2-5
 3. M. G. Bernin, 30 H. P. Renault..... 0.48 3-5
- (Winner and second man in fastest heat.)

Final Heat.

1. Barney Oldfield, 120 H. P. Winton..... 0.46 3-5
2. W. K. Vanderbilt, Jr., 90 H. P. Mercedes.. 0.49 3-5
3. S. B. Stevens, 60 H. P. Mercedes.....Distance.

Five-Mile Invitation.

First Heat.

1. J. L. Breese, 40 H. P. Mercedes..... 5.18 3-5
2. William Wallace, 30 H. P. De Dietrich..... 6.21
3. A. D. Proctor Smith, 24 H. P. Panhard....

Third Day, January 29

FIVE-MILE INVITATION.

Second Heat.

1. W. K. Vanderbilt, Jr., 90 H. P. Mercedes.. 3.38 1-5
2. S. B. Stevens, 60 H. P. Mercedes..... 3.39
3. H. L. Bowden, 60 H. P. Mercedes..... 3.46 3-5

Final Heat.

1. W. K. Vanderbilt, Jr., 90 H. P. Mercedes.. 3.34 3-5
2. S. B. Stevens, 60 H. P. Mercedes..... 3.41 4-5
3. J. L. Breese, 40 H. P. Mercedes.....

One-Mile Invitation.—Class B.

First Heat.

1. H. L. Bowden, 60 H. P. Mercedes..... 0.51 4-5
2. W. G. Brokaw, 30 H. P. Renault.....
3. J. L. Breese, 40 H. P. Mercedes.....

Second Heat.

1. W. K. Vanderbilt, Jr., 90 H. P. Mercedes.. 0.47 3-5
2. S. B. Stevens, 60 H. P. Mercedes..... 0.50 1-5

Final Heat.

1. W. K. Vanderbilt, Jr., 90 H. P. Mercedes.. 0.48
2. H. L. Bowden, 60 H. P. Mercedes..... 0.51

One Mile, 1.05 Class.

1. H. L. Bowden, 60 H. P. Mercedes..... 0.52 2-5
2. F. A. La Roche, 40 H. P. Darracq..... 0.55 1-5
3. A. D. Proctor Smith, 24 H. P. Panhard.... 1.06 3-5

One Mile, 56 Seconds Class.

First Heat.

1. H. L. Bowden, 60 H. P. Mercedes..... 0.48
2. S. D. Stevens, 60 H. P. Mercedes..... 0.48 4-5
3. W. G. Brokaw, 30 H. P. Renault..... 0.49

Second Heat.

1. F. A. La Roche, 40 H. P. Darracq..... 0.53 2-5
2. E. Frederick, 40 H. P. Decauville..... 0.57
3. William Wallace, 30 H. P. De Dietrich..... 1.23

Final Heat.

1. H. L. Bowden, 60 H. P. Mercedes..... 0.50 4-5
2. F. A. La Roche, 40 H. P. Darracq..... 0.54
3. W. G. Brokaw, 30 H. P. Renault..... 0.56 3-5

Five-Mile Free-for-All.

First Heat.

1. Barney Oldfield, 120 H. P. Winton..... 3.48 4-5
2. F. A. La Roche, 40 H. P. Darracq..... 4.01 2-5
3. M. G. Bernin, 30 H. P. Renault.....
4. L. S. Ross, 6 H. P. Stanley.....

Second Heat.

1. W. K. Vanderbilt, Jr., 90 H. P. Mercedes.. 3.40
2. H. L. Bowden, 60 H. P. Mercedes..... 3.55 1-5

Final Heat.

1. W. K. Vanderbilt, Jr., 90 H. P. Mercedes.. 3.31 3-5
 2. H. L. Bowden, 60 H. P. Mercedes..... 3.40 4-5
- Barney Oldfield did not start in the final heat, owing to a broken crank-shaft on his machine.

Five-Mile Handicap.

1. S. B. Stevens (scratch), 60 H. P. Mercedes. 4.00 2-5
2. Joseph Tracy (5 sec.), 70 H. P. Peerless... 4.28 1-5
3. F. A. LaRoche (35 sec.), 40 H. P. Darracq. 5.05 1-5
4. A. D. Proctor Smith (50 sec.), 24 H. P. Panhard 5.46 1-5

Five Miles, for Runabouts.

(Each vehicle carrying two persons.)

1. L. S. Ross, 6 H. P. Stanley..... 7.53 1-5
2. H. L. Willoughby, 11 H. P. Autocar..... 8.03 2-5

One Mile Motorcycle Race.

1. G. H. Curtis, 5 H. P. Hercules..... 0.50 1-5
2. Oscar Hedstrom, 5 H. P. Indian..... 1.04
3. W. W. Austin, 1 3-4 H. P. Indian..... 1.09 1-5

Fourth Day, January 30

FIFTY-MILE CHAMPIONSHIP.

1. W. K. Vanderbilt, Jr., 90 H. P. Mercedes.. 40.49 4-5
2. H. L. Bowden, 60 H. P. Mercedes..... 42.44 2-5
3. M. W. Ehrlich, 24 H. P. Panhard..... 57.08 3-5
4. Louis Nudleman, 40 H. P. Darracq.....
5. M. G. Bernin, 30 H. P. Renault.....

Ten-Mile Invitation.

1. W. K. Vanderbilt, Jr., 90 H. P. Mercedes.. 6.50
2. S. B. Stevens, 60 H. P. Mercedes..... 7.03 1-5
3. H. L. Bowden, 60 H. P. Mercedes..... 7.08
4. Walter Christie, 30 H. P. Christie..... 9.35

Ten-Mile A. A. A. Championship.

1. W. K. Vanderbilt, Jr., 90 H. P. Mercedes, Time not taken.
2. H. L. Bowden, 60 H. P. Mercedes.....
3. E. Frederick, 40 H. P. Decauville.....

Twenty-Mile Handicap.

1. H. L. Bowden (scratch), 60 H. P. Mercedes. 18.40
2. S. B. Stevens (scratch), 60 H. P. Mercedes. 18.50 2-5
3. E. Frederick (1 m. 10s.) 40 H. P. Decauville 30.26 2-5
4. J. Tracy (10 sec.), 70 H. P. Peerless..... 31.53 1-5
5. Walter Christie (2.50) 30 H. P. Christie.....
6. M. W. Ehrlich (2.50), 35 H. P. Panhard....

Ten-Mile Handicap.

1. S. B. Stevens (scratch), 60 H. P. Mercedes. 7:28 4-5
2. H. L. Bowden (scratch), 60 H. P. Mercedes. 7:38 4-5
3. H. L. Willoughby (2 m.), 11 H. P. Autocar. 13:35 1-3

Ten-Mile Motorcycle Race.

1. G. H. Curtis, 5 H. P. Hercules. 8:45 2-5
2. W. W. Austin, 1 3-4 Indian. 13:08 2-5
3. Oscar Hedstrom, 1 3-4 Indian.

Ten Miles Against Time.

- Barney Oldfield, Bullet, No. 3. 9:42 4-5

Fifth Day, February 1

SPECIAL MATCH RACE, TEN MILES.

Second Heat.

1. S. B. Stevens, 60 H. P. Mercedes. No time taken.
 2. H. L. Bowden, 60 H. P. Mercedes.
- Won by 200 yards. Final heat postponed.

Record Trials.

Driver.	Machine.	Kilometer.	Mile.
Louis S. Ross (Stanley steamer).	0.34 2-5	0.55 2-5
W. J. Hastings (Baker electric).	0.37 2-5	1.00 3-5
Chas. Basle (60 H. P. Mercedes).	0.26 2-5	0.43 2-5
S. B. Stevens (60 H. P. Mercedes).	0.27	0.43 1-5
H. L. Bowden (60 H. P. Mercedes).	0.27 2-5	0.44 2-5
Jos. Tracy (80 H. P. Peerless).	0.27 3-5	0.45 2-5
Jas. L. Breese (40 H. P. Mercedes).	0.36 2-5	0.58
Walter Christie (30 H. P. Christie).	0.37 3-5	1.00

PRIZES AND THEIR WINNERS.

The Prize Committee of the Florida East Coast Automobile Association at its meeting issued a list of awards. The Ormond Hotel decided to give its handsome vase outright, instead of asking that it be won twice, while similar action was taken by the Clyde Line Steamship Company. There are therefore no challenge trophies involved. Mr. Stevens took the Ormond vase while Mr. Vanderbilt secured the Clyde piece of silver.

One-Mile Championship, A. A. A.

1. Barney Oldfield. 0:46 2-5
- First prize, J. B. Moore, tankard.

One-Mile Invitation.

1. W. K. Vanderbilt, Jr. 0:48
 2. H. L. Bowden. 0:51
- First prize, Burgoyne cup; second prize, silver loving cup.

One-Mile (1.05 Class).

1. G. L. Bowden. 0:52 2-5
 2. F. A. La Roche. 0:55 1-5
- First prize, silver loving cup; second prize, silver loving cup.

One-Mile (56 sec. Class).

1. H. L. Bowden. 0:50 4-5
 2. F. A. La Roche. 0:54
- First prize, silver loving cup; second prize, silver loving cup.

One-Mile Motorcycle.

1. G. H. Curtis. 0:59 1-5
 2. Oscar Hedstrom. 1:04
- First prize, silver loving cup; second prize, silver loving cup.

Five-Mile Invitation.

1. W. K. Vanderbilt, Jr. 3:34 3-5
 2. S. B. Stevens. 3:41 4-5
- First prize, Clyde Line Steamship Company's trophy; second prize, silver loving cup.

Five-Mile Free-For-All.

1. W. K. Vanderbilt, Jr. 3:31 3-5
 2. H. L. Bowden. 3:40 4-5
- First prize, Neverout Headlight; second prize, silver loving cup.

Five-Mile Runabout.

1. Louis Ross. 7:53 1-5
 2. H. L. Willoughby. 8:03 2-5
- First prize, silver loving cup; second prize, silver loving cup.

Five-Mile Handicap.

1. S. B. Stevens. 4:00 2-5
 2. Jos. Tracy. 4:28
- First prize, Ormond vase; second prize, silver loving cup.

Fifty Miles, Free-for-All.

1. W. K. Vanderbilt, Jr. 40:49 4-5
- First prize, silver loving cup.

Ten-Mile Championship, A. A. A., Free-for-All.

1. W. K. Vanderbilt, Jr. No time taken.
 2. H. L. Bowden. No time taken.
- First prize, silver loving cup; second prize, silver loving cup.

Ten-Mile Handicap.

1. S. B. Stevens. 7:28 4-5
 2. H. L. Bowden. 7:38 1-5
- First prize, silver loving cup; second prize, silver loving cup.

Ten-Mile Invitation.

1. W. K. Vanderbilt, Jr. 6:50
 2. S. B. Stevens. 7:03 1-5
- First prize, Automobile Magazine punch bowl—gift outright, no conditions; second prize, silver loving cup.

Ten-Mile Motorcycle.

1. G. H. Curtis. 8:54 2-5
 2. W. W. Austin. 13:08 3-5
- First prize, silver loving cup; second prize, silver loving cup.

Twenty-Mile Handicap.

1. H. L. Bowden. 18:40
 2. S. B. Stevens. 18:50 2-5
- E. Frederick.
- First prize, Seaboard Air Line trophy, vase—gift outright, no conditions; second prize, Gray & Davis headlight; third prize, silver loving cup.

WINNERS AT FLORIDA'S TOURNAMENT.

- W. K. Vanderbilt, Jr., New York (90 H. P. Mercedes.)

One-mile invitation; time, 48 seconds.

Five-mile invitation; time, 3:34 3-5 seconds.

Five-mile free-for-all; time, 3:31 3-5 seconds.

Ten-mile invitation; time, 6:50 seconds.

Ten-mile championship; no time taken.

Fifty-mile championship; time, 40:49 4-5 seconds.

H. L. Bowden, Boston (60 H. P. Mercedes)

One-mile (56-second class); time, 48 seconds.

One-mile (1.05 class); time, 52 2-5 seconds.

Fifteen-mile match race; time, 10:18 seconds.

Twenty-mile handicap; time, 18:40 seconds.

S. B. Stevens, Rome, New York. (60 H. P. Mercedes.)

Five-mile handicap; time, 4:00 2-5 seconds.

Ten-mile handicap; time, 7:28 4-5 seconds.

Ten-mile match race, no time taken.

Barney Oldfield, Toledo, O. (120 H. P. Winton).

One-mile A. A. A. championship; time, 46 2-5 seconds.

W. G. Bernin, Paris (With W. Gould Brokaw's 30

H. P. Renault).

Fifteen-mile match race; time, 12:51 4-5 seconds.

Louis S. Ross, Boston (6 H. P. Stanley Steamer).

Five-mile race for runabouts; time, 7:53 1-5 seconds.

World's Records Established.

*One kilometer, Chas. Basle, 60 H. P. Mercedes. 0:20 2-5

*One mile, W. K. Vanderbilt, Jr., 90 H. P. Mercedes. 0:30

*One mile, Barney Oldfield, 100 H. P. Winton. 0:43

*One mile, L. S. Ross, 6 H. P. Stanley (Steam). 0:55 2-5

*One mile, W. J. Hastings, Baker (Electric). 1:00 3-5

*Five miles, W. K. Vanderbilt, Jr., 90 H. P. Mercedes. 3:31 3-5

*Ten miles, W. K. Vanderbilt, Jr., 90 H. P. Mercedes. 6:50

*Fifteen miles, H. L. Bowden, 60 H. P. Mercedes. 10:18

*Fifteen miles, M. G. Bernin (middle weight) 30 H. P. Renault. 12:51 4-5

*Twenty miles, W. K. Vanderbilt, Jr., 90 H. P. Mercedes. 17:02

*Thirty miles, W. K. Vanderbilt, Jr., 90 H. P. Mercedes. 24:11

*Forty miles, W. K. Vanderbilt, Jr., 90 H. P. Mercedes. 33:52 2-5

*Fifty miles, W. K. Vanderbilt, Jr., 90 H. P. Mercedes. 40:49 4-5

*Against time. All others were made in competition. Charles Basle's kilometer in 26 2-5 seconds equals the world's record held by Duray.

Mexican Street Names

By Miguel Valdez

WHEN the adventure seeking American reaches the City of Mexico, and there attempts to make use of an automobile or any other means of transport, nothing among all the queer things he will encounter there will to him seem so strange as the names of the streets over or through which he will wind his devious way.

For example—there is the Heart of Jesus Street, and the Street of the Holy Ghost; Ave Maria Street, and the Avenue of the Love of God. If these be not enough there are the Street of the Saint of the True Cross, the Arches of Bethlehem, and the Graves of Saint Sunday Street; the Bridge of Saint Peter and Saint Paul; and the Street of the Crosses of Sorrow.

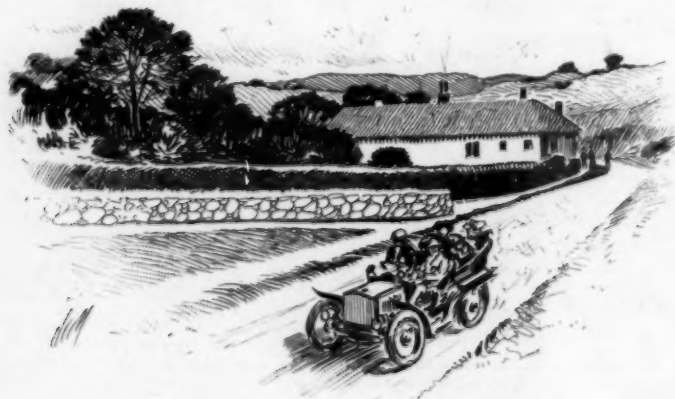
Not only are the names of the streets unusual, but they are often in the most incongruous locations. For instance, if you proceed down Jesus Street for two blocks you will be startled to find that you are then on the Street of the New Slaughter House. The Alley of the Egg and Potato Street are just as likely to be the prolongation of the Back of Saint Teresa Street as any other.

The Street of the Seven Princes may no longer be inhabited by royalty, but

the Avenue of Illustrious Men was named for real persons. The Street of the Lost Child derived its name from a popular tradition, but the Avenue of the Fifth of May was named for a famous battle with the French.

At your disposal is the Street of the Little Bird, Street of the Fish, Bull Street, and Goat Street, and Street of the Flies, the Rats, and the Roosters. Then there are the streets named for various tradesmen, as the Streets of the Hatters, Tobacconists, Coachmen, Milkmen, etc. One short block glories in the name of the Street of the False Entrance of Saint Andrew. The Alley of the Little Candle Shop, the Street of Heads, Street of a Thousand Wonders, the Square of the Thief, are other oddities.

It is not recorded exactly as to whether Sad Indian Street and the Street of Crazy People were named after those who endeavored to learn all the street names of the City of Mexico, but if you at least feel inclined to swear after trying it yourself, you should first go over to Devil Street, so as to be in a locality where hot words are sure to be appropriate.



A Plea for Ideals

By Frederick Remsen Hutton*

I DO not admire and cannot approve the word "automobile" itself. This is a French adjective which we have transformed into an American noun. It is a crossbreed in the first origin, with a Latin mother and a Greek father. It is not correct in any case the moment that human intelligence comes in to preside over a mechanical structure. The word is a shameless mulatto. But what shall be said of the verbs which are derived from such a noun?

Fully as much in need of thought and labor, is our dearth of good hard-headed American words for "chauffeur," "tonneau," "chassis," and "garage." These are French immigrants, but we will use them, if we must, for fault of better. I wish, however, that someone would find us a good American coinage for them.

But, worse than this, is the need for some one word which shall serve to explain the operation of running or operating an automobile and the process of him or her who is a passenger in one. We are in sad need of a verb. The horse users have "ride" and "drive," each with its own proper meaning. The automan mounts both motor and vehicle and therefore he "ride-drives." So does the passenger, who does not operate the machine. "Operate" is a makeshift and no one will ask his friend to come and "operate" with him. What, therefore, I want to urge on you, is the creation of some terms derived directly from the roots of our language which shall be new to meet the new requirement and special, because applied nowhere else. I propose to make such a suggestion to

you here, and ask you to adopt it. I choose my new word and its derivatives from the old Latin verb "*pellō*." Its principal parts, as I learned them were "*pellō*," "*pell-re*," "*pepuli*," "*pulsum*." We have used these roots already in our words impel, propel, and propulsion. I propose that the verb which shall take the place of the sentence "to operate or run an automobile vehicle," shall be the monosyllable "to pell." The man who does it and is at the wheel and levers, shall be called "the peller." The simple extension of the root gives you the word "motor-pulsion" to take the place of automobilism, which latter is an abomination. The roots of "motor" and "pulsion" are both Latin, and scientifically correct. The automobile itself would be a "motor-pult vehicle," or simply "a motor-pult" for short. We would get rid of those absurd derivations from chauffeur and automobile for the operation of the machine, such as "to chauff" and "to bubble." We have no right to use the word drive because it is the motor which drives and impels or propels the vehicle. The man, dog, or other obstacle into which the peller runs his machine he simply dispels. The passive form of the verb, applicable to the passenger might be made "to pelt." Then that which was a driving rain under the horse drawn conditions, becomes a pelting shower with the motor-pult. We shall escape the use of doubtful words, such as troubled the girl whom her best friend Jack took out to pelt with him, when he went pelling. They met the minister on a lonely stretch of road and Jack asked him to get up into the tonneau and join them. If Jack had asked him to get up and pelt with them there would have been no uncertainty in any-

*Delivered before the Automobile Manufacturers' Association on the occasion of their annual banquet, Jan. 22.

one's mind unless someone might have suggested that there was a "skin game" somewhere.

A second ideal in the field of motorpulsion looks to the improved appearance of the peller as respects his outfit when he is on the road. The leather garment has much to commend it and a cap plainly the most intelligent headgear. The eyes and cheekbones must also be shielded in most climates. But why, in Heaven's name, must the peller make himself look like a beast of the Apocalypse when he takes his pleasure on the road. I will venture to assert that much of prejudice against the sport, much of the contemptuous scorn and ridicule which has been poured on it, and much of the alarm and nervous excitement of nervous horses, is the direct outcome of the appearance of the armor-plated guy which the peller has made of himself. I commend to you the creation of a more rational and becoming equipment as an ideal of the near future when the story of that western Mrs. Partington will lose both its point and sting. In speaking of her husband's first appearance in his new motor-pult rig she said: "When Henry came in I did not know him because he had on his automobile garbage."

My third ideal looks to such a method of control as respects the combustion in the cylinder as shall mitigate the nuisance and constant unpopularity of the odor which imperfect combustion of gasolene leaves behind it. I need only mention that system of control which keeps the proportions for perfect combustion constant in the cylinders while varying the amount of mixture as the work may vary. To disturb the proportions is to make a mixture either over rich to burn completely or too poor to do so, and the countryside reeks to heaven. May I ask you to fasten this point by the story of the small animal

of the countryside which has not as yet been domesticated and whose weapon of defense is its pungent and unnameable odor. One of these had been practicing its new found powers, but on the approach of an automobile which throttled the gasolene only, he took refuge until the clatter had passed. When he came out again from his retreat he sniffed the air and with a despairing gesture said, "O, what's the use."

But in my nonsense and sportive presentation, I must not let myself be sidetracked from two important technical matters which I believe to be of great meaning to the trade and sport. It is my belief that the motor-pult business will be put on a higher plane of stability and of success by those makers who will secure the easy motion of the present pneumatic tire construction and yet shall take the air out of those organs of the machine which are most subject to abrasion and injury by wear and impact. The pneumatic spring is unparalleled for smoothness, for comfort, and in its release of running gear and body from the jar of the road. But I cannot emphasize too strongly my opinion that it should be placed further up in the structure which begins at the road surface and ends in the body or the cushion of the seats. The motor-pult is a definite engineering structure if it is successful. It must therefore be proportioned according to definite laws that it may properly resist the strains to which it is exposed and accomplish the purpose for which it is designed. It is made of steel, copper, wood, bronze, iron, aluminum, rubber, and air. The air which supports the vehicle is as much a structural element as the steel; to withdraw the air is only little less fatal than to pass some loadstone which would at once draw out the steel or iron and leave the rest. It is plainly possible under present designs to have one of

the component elements suddenly and practically explosively withdrawn from the structure. It is small wonder that disaster and certainly great annoyance should follow in the train of the withdrawal of the air. This fugitive air is imprisoned with a narrow margin of safety within the softest material of your composite structure and the one which is most easily pierced in accident or mishap. I urge you as an ideal, to secure the pneumatic effect of smooth running by imprisoning the air between the running gear and the body, and mounting the motor weight on the frame with stiff pneumatics to take up the jar. This will realize two very serviceable motor-pult ideals as respects costs of operation reliability, and freedom from transmitted vibration.

It is the necessity to adopt a standard capacity or performance guarantee in the sale of motor-pults. You are too well aware of the difficulty which faces the safe conservative when he meets a reckless radical who is trying to sell against him. The uninstructed buyer should not have to employ a consulting expert, but should rely on the good faith of the maker that he gets what he understands that he is paying for. Cylinder volume is not a satisfactory basis in motor-pults, because in the internal combustion engine, the horse power does not increase with the cylinder volume, after a certain speed is reached. Inlet resistances may reduce the horse power at high speeds by lowering the mean pressure. Speed guarantee is not satisfactory to either builder or buyer. If the builder must maintain speed, with an unassigned quality of roadbed, he must make a motor of extra size and with therefore extra operating expense. There can be no proper guarantee of speed in disregard of the power of the motor than there can be a safe monkeying with the products in the

multiplication table. What I want to urge on you is a guarantee which shall be scientifically unassailable, because it is in accordance with the laws of mechanics. If scientifically unassailable, you will be absolutely defensible in suit at law, or in controversy. If the guarantee is not scientific you will never be safe, and the motor-pult business will remain on that low and uncertain plane where the standard of frankness is no higher than that of the trader in horses. My appeal is for a guarantee covering two points:

1. The horse power of the motor shall be determined by brake test and shall be rated by brake horse power with standard fuel. The motor coupled up with its carbureter and muffler on and the brake applied on the flywheel, while the motor runs at that speed which shall give the best horse power results.

2. The minimum loss in transmission from the motor shaft to the tire of the wheel shall be specified and lived up to. This figure gives the net horse power at the tire of a driving wheel at the best speed of the motor for power. The speed of the car as a whole must not be deduced from the gearing, but must be obtained by dividing this horse power reduced by the transmission loss by the total weight of the car and its load. This follows since the horse power is a number of pounds of weight moved through a certain number of feet per minute. If the motor speed is kept up then the propelling effort at the tire will be inversely as the speed of the car is made less. This will be the power for hills and for bad road surface. The small machine of light weight will stand on the same footing as the massive one and will reap its own particular advantage of maneuverability in crowded streets, to offset its diminished carrying capacity. Prices ought to equalize both up and down, to the advantage of every-

one, both to seller and to buyer. A wider community will buy because they do so with definite knowledge and your buyer will be a satisfied customer, which

all advertising agrees to call the best advertisement. I make this my last ideal, and I urge on you such action as shall bring the result to pass.

Helps on Hills

By S. B. Devins

AS it is with the hills themselves, so it is with the surmounting thereof—the variety is great. Hardly any two drivers, or two machines, will climb a hill in the same way. Both man and machine each have their peculiarities, and each is sure to exhibit them when it comes to going up a grade.

Of late there has developed a practice among “experts” of slipping the clutch to enable the car to surmount in preference to resorting to the lower gear. There are many who advocate such a method, while on the other hand, there are those of equal experience who deprecate it.

Broadly speaking, it may be said that the practice is a bad one on a long hill when the engine begins to flag early, but if it will obviate changing for just the last few yards over the crest of a rise there is nothing against the practice, except the slight extra wear it entails on the clutch, which can be ignored when the clutch is properly designed and made. As some are not acquainted with this method of driving, perhaps a few hints as to surmounting a hill by slipping the clutch may be timely.

The object of the change speed gear, of course, is to maintain as near as possible an equal engine speed, but it will be easily seen that when one is driving up a hill and the engine begins to lag the clutch may momentarily be withdrawn, the engine allowed to pick up its speed, and the clutch gently let in again, when the momentum will be kept

on the car for a short distance. Then the engine will begin to flag again, necessitating another brief release from the heavier portion of its work, after which it will again pick up the car.

As a matter of fact, in this method of hill climbing, one has to keep one's toe on the clutch pedal all the time, and be prepared to let the engine pick up though still exerting some of its power in the propulsion of the car while the clutch is slipping. Those who have long used this method of surmounting the crest of hills rather than change speed for a matter of a few yards, agree that they have never experienced any ill effects from it; this they usually attribute to the fact that the clutch lever is always kept in the best possible order and the adjustment maintained.

When this clutch slipping fails to get you up then the only resort is “to turn tail to the enemy” and endeavor to go up mule-wise, that is to say, to back up. As this is a last resort, so is it one which calls for an unusual amount of care, as well as considerable skill, on the part of the driver. Other than the necessity of this backward progress up a grade there is also added safety since the driver has at his command not only the full power of the brakes if they are needed, but what is perhaps still more important to the majority, the car is facing forward should it show the least tendency to get out of the driver's control. Almost anyone who has had any driving experience can steer a car back-

ward at a slow speed safely, but very few are sure of doing so if it is running at any considerable speed, so the wise man makes *festina lente* his motto in driving of this kind. In going up a hill backward should the car fail to climb the hill and the brakes be weak, there is always a possibility of running down the decline backwards, and if it once fails to obey the brake, the chances are that it will gather speed and the driver

will be compelled to take the bank to avoid worse trouble lower down when his speed has increased. The long and the short of it is that no car should be made which has not brakes which will hold it backward and forward on any hill, however steep, and anyone who made such a car should be held legally responsible for the accidents which sooner or later it must be responsible for if its equipment is faulty.



Touring Season Again at Hand

By Robert Bruce

FROM midwinter's chief automobile event, the National show, and the Florida East Coast tournament immediately following, it is not so very long to the open roads of spring. The prospect was never more inviting than now. Plans for 1904 are already being made in greater numbers than ever before—including a great automobile pilgrimage to St. Louis some time during the summer—and everything points to a banner year for this practical side of the sport. Not only has the touring spirit taken a firm hold of the automobile public within the past two or three years, but new routes have been opened up in considerable numbers, and the facilities for covering same multiplied in large measure.

Certainly in no other country does the outdoor world speak with more inviting accents than in our own, and nowhere is there a better opportunity for a day's or week's outing than among the hills and in the valleys within a short run of the Metropolitan District. By the gradual extension of good roads, whole sections are made accessible that might otherwise be unknown to independent road travelers for many years to come. There is the opportunity to go and come with greater ease and increased speed which, in the end, brings many a naturally attractive locality to hundreds or thousands who might otherwise know nothing of it.

Up to this time practically all of New England, except northern Maine and

New Hampshire, above the White Mountains, is fairly accessible to the tourist. Automobiles have crossed the Green and White Mountains a number of times; have climbed to the tops of Mounts Washington and Greylock, and skirted the eastern shore of Maine as far as Bar Harbor. The Litchfield and Berkshire Hills, with their many miles of good roads, are within a comparatively short distance of New York and Boston, and especially convenient to the cities and towns in the Connecticut River Valley; already they have become a very popular touring ground.

The Hudson River district is opened up from end to end, with fairly good connecting lines to Lake George and Lake Champlain. Central, western and northern New York show comparatively little improvement from year to year, but all are traveled with more or less success. A much better road system connects Buffalo, Erie, Cleveland, Toledo and Detroit along the lake shore, losing in quality again on the final stretch to Chicago. From the western metropolis much of northern Illinois and southeastern Wisconsin is within touring range, the lines to Milwaukee and the Wisconsin lakes along the great Sheridan Road already showing great improvements and promising more.

On the Atlantic seaboard to the South and West, the way is opened up in good shape to Trenton, Philadelphia and Wilmington, less inviting but still passable to Baltimore and Washington. Routes below Washington are practically closed by continuously difficult roads, except in separate districts like the Shenandoah Valley, Virginia, some parts of western North Carolina, and on some portions of the Florida East Coast. To enjoy a tour in these sections, the automobile must usually be shipped from north of the Potomac; and a like restriction hedges about the Southwest, though

pioneering trips between a number of important points have already been made. Considerable progress has been made also in southern and central California, tours to Mount Lowe and to the Yosemite Valley having already lost much of their novelty. In western Oregon and on the north Pacific slope generally, current progress is naturally small, but the future has a large promise as that section develops and is able to furnish more good roads. Already three complete transcontinental trips have been made, with a likelihood of several more within the next six months.

In and about the Metropolitan district, touring is naturally better established than anywhere else in this country. Within range of a half day's ride of Manhattan there is nearly all of Long Island, half of New Jersey, and some portions of eastern Pennsylvania. Throughout all this section the automobile has become a familiar sight on the country highways and byways, the recognized ally of awakening interest in whole counties that have suffered in population and importance by the growth of the seaboard cities. Adequate repair, supply and storage facilities can usually be depended upon between Portland, Me., and Lowell, Mass., on the north, and Washington, D. C., and Gettysburg, Penna., on the south; through central and western New York, along the southern shore of Lake Erie, and on the Chicago-Milwaukee line, as well as between Cleveland and Cincinnati. Elsewhere, one's care is apt to be multiplied as soon as the larger cities are left behind; but five years more and every enterprising town of 1,200 people or more will have its public garage as surely as a hotel or livery stable.

There are discomforts, of course. Instead of one's own home, there is the second-rate or third-rate hotel, where one must assume comfort and ease even

if he have it not. Instead of the well-appointed garage on one's own premises, a horse stable must frequently be looked up, and the valuable machine given as good shelter as possible over night. It is usually necessary to become accustomed to curious eyes when traveling in the country. To a certain extent every owner is his own chauffeur as well as his own repairman, while in case of a mishap, nine onlookers out of ten secretly hope the job won't be finished too quickly. It is all the same if the automobilist has run an automobile worth \$5,000 at speed into a stone wall to avoid scaring a \$50 horse attached to a load of vegetables being drawn to market by a country gardener.

Any false pride one starts off with is very likely to be left at various places on the route, and a thoroughgoing democracy established in its stead. But the only way to thoroughly enjoy a road trip is to use the automobile as a means of breaking as completely as possible away from one's fashionable habits. To be satisfied while doing this is the one thing needful. Even the conventional pleasures of the summer resorts are invariably found to require too much care and display, and more changes of costume than a man on a tour can allow for. Some people are happily constituted in being able to follow the road and keep in the social whirl at the same time; but they are decidedly in the minority.

The popular demand for touring vehicles has been well met by the designers and builders, and there is much greater variety to select from than even 1903 afforded. Some of the largest manufacturers have made such types their specialty. The tendency in this direction has had a beneficial influence, both in this country and Europe, on the style as well as the utility of the product. By taking the racing requirements for what

they are worth in other directions, and centering all their mechanical resource and ingenuity on the production of types in which comfort and convenience have precedence over the speed feature, some very substantial results are seen. Nothing so emphatically shows the rapid advance in design and construction as the particular development in this class of automobile. Bodies have become lower, wheel bases longer, and the consequent changes in the vehicle proper have been such as to afford more space for the feet, easier seats, a handier position of the manipulating devices, as well as increased storage capacity for fuel, tools and luggage.

The proper vehicle is, of course, the most important single consideration in a complete touring outfit, but now that cars can be had at prices to suit almost all purses, the difficulty is reduced to the problem of selecting the best, according to each one's definition of "the best." There is really nothing on the market in the way of a complete touring outfit. Nobody makes it, nobody sells it, and yet there is an unprecedented demand for it by tourists who have tried to coax pleasure out of road riding without the proper outfit to make it agreeable. Veteran tourists generally come to the point sooner or later of planning their outfits according to their own individual ideas. The advertising pages of the automobile publications are good indexes of new things in the way of clothing and equipments, and nearly all of the outfitting houses issue illustrated catalogues, which can be had for the asking.

Before starting out on a tour one should go over the entire vehicle, particularly its engine and running parts—not that it is always essential, but this reasonable precaution invariably means more satisfactory results. Take special note of the position of every oil cup

or other lubricating arrangement, because every working part must be supplied with lubricant in some way or other. If the car has never been run, the question of lubrication is the first important one to engage the attention of the operator, and oil should be freely applied except to the cylinder. An excessive amount of oil in this part of the engine will sometimes make trouble by gumming and fouling. On the other hand, a new cylinder always admits oil more freely at first than after it has been run awhile, so it will probably be necessary to increase the supply to this part after the engine has been run a short time.

All important nuts, bolts and connections should be carefully examined to make sure they are secure and tight, especially those supporting detached parts of the mechanism, such as the muffler, carbureter and piping. The brakes and the steering gear should be tested with particular care. It sometimes pays, also, to make sure that the gasolene, water and lubricating pipes are free from dirt or waste gathered in the bottom of the storage tanks. Despite the fact that the space available for tools is usually limited, nearly all the emergencies of the road can safely be met with a judicious selection of tools. In addition to the special tools usually supplied with a car, the following articles will be found of great use: a small pipe wrench, a pair of gas-pipe pliers, a large and a small screw driver, a pair of flat-nosed pliers, a small hammer, a pair of wire cutters, a large jack-knife, a flat, a half-round and a three-cornered file, a coil of soft iron wire, a roll of sticky tape, a cold chisel, a monkey wrench, and some extra nuts and bolts.

In water-cooled engines it is essential that the circulating pump be kept constantly efficient. This may be accomplished by first carefully seeing that it

is properly packed, so that there are no leaks, and then by attaching a small grease cup just above the rotary flanges and, as soon as the engine is warmed up, forcing down a cup of grease. The fitting of a cup of this character means a slight expense, but the reward is ample; by the use of this arrangement, water pumps may often be kept circulating after all other means have been tried without avail.

The electric wiring system should receive careful attention, both as to the fullest insulation and as to loose connections. The simplest method of guarding against short circuiting in exposed wires is to secure some quarter-inch rubber piping, which can be purchased at any rubber store, and cover all the wire from the battery or switch to the electrode. In this way the usual troubles in this direction are obviated. In connecting from the coil to the plugs the use of this rubber piping is of material advantage as a protection against water, and just here the precaution is most often neglected. It is well to go over all wire connections and make sure that they are in good condition, as a loose connection in a wire may give an irregular current, owing to the vibration which gives the make-and-break in a circuit; and skipping of explosions not infrequently occurs from this cause. Too much care cannot be given to this point.

Proper lubrication is always a very important matter whether the car is out for a very short ride or a long tour. The selection of oil is of prime importance, as vegetable oils as a rule have a tendency to carbonize under heat more rapidly than the best mineral lubricants. It is advisable to select mineral lubricants, particularly for the inlet and exhaust valves where the heat is often excessive. As a matter of fact, one of the most satisfactory all-around lubri-

cants for running gears may be made of some first-class heavy oil mixed with a liberal amount of graphite. In case of a hot bearing or a "stuck" valve, relief may be had almost immediately by forcing some of the heated oil and graphite into such parts. This expedient has proved quite efficient on many occasions, particularly in heavy vehicles where the hub bearings have run hot, and in the case of inlet and exhaust valves that have "stuck." As a lubricant for the valves the oil and graphite is the most satisfactory compound.

Nearly all of the 1904 touring cars are equipped with tanks carrying a supply of gasoline sufficient for a run of 100 miles or more. This increase of capacity, of course, is primarily due to the increasing popularity of touring cars of longer range, for while the prudent automobilist will plan to always keep his tank well filled, and avoid running near the end of his supply, there are times when he comes perilously near it, and on this account an increased capacity means a much larger margin of safety. The increase of tank capacity has been to some extent at the expense of lightness, and this is one of the factors to which the prevailing tendency toward the increase of weight is due. The lightest runabouts, of course, not only have no room for large tanks, but the weight of the latter when filled is so considerable that a strengthening of the entire vehicle would be necessary.

Until dependable repair shops are scattered over the country, it should be the purpose of every chauffeur and owner of an automobile to be able to make ordinary repairs on the road. The driver of a horse-drawn conveyance has any number of wagon repair shops and horseshoeing establishments along his way; but the automobilist is yet like the mariner starting out on an ocean voyage—not knowing from whence help can

come in case of need. At the first sign of creaking springs or groaning mechanism, the novice very likely begins to look for a repair shop. A man with a fair knowledge of the construction of his automobile, however, can usually find out the cause of the trouble in a few minutes, and remedy it perhaps as quickly. Neglect means eventually a bill for repairs that astonishes the one who has to pay it—very likely shortening at the same time the useful life of the machine.

A fractured axle is more often due to unskilful driving than to faulty construction. When going at speed over a hard, rough road the axles are strained considerably, and if the chauffeur does not know how to negotiate obstructions, he is in a fair way, sooner or later, to break something. He may proceed in this careless way a dozen times without meeting with misfortune, but the thirteenth time he may pay for it all. Such experiences are spared the expert who not only knows the principles upon which his machine is constructed, but has gone down below the mere surface of instruction in mastering his automobile.

There will be much more demand for automobile routes and touring information this year than ever before; and the *AUTOMOBILE MAGAZINE* will soon enter upon its third year of regular work in this field. The call for this kind of service grew from practically nothing to a wide range of inquiry almost in a night, and nowhere had any adequate preparation been made for it. Outlining and mapping good through routes waited, as is usual in such cases, upon the demand asserting itself and justifying the considerable expense of the work. Beginning with its May, 1902, issue, the *AUTOMOBILE MAGAZINE* published the first of a series of road descriptions and illustrations, carried to and through Oc-

tober without a break; and the same plan was carried through also in 1903. These tours were the first in this country to be put out on such lines, and likewise the beginning of a plan to take up one important section after another with the idea of tracing its principal through routes in the same way.

This work is, however, one of ten or more years rather than one of two; and the problem the automobile tourist meets in new sections is how to make his particular trip in advance of its investigation by competent authority. He must simply go ahead and find out for himself; and if he will communicate the general results of his observations to us, it will be used for the information of others similarly situated. As for published road maps, about which inquiries are received from time to time, there is no general and reliable series anywhere to be had. Those sold by Geo. H. Walker & Co., Harcourt street, Boston, Mass., are quite serviceable for Boston and its suburban riding district; also for eastern New England. Rand, McNally & Co., Chicago, publish the best road maps of the Middle West. Most of the other publications in this line are pure guesswork, with the United States geological surveys as their sole working foundation. The principal trouble with these is that a person making a special trip must pick his way from out a mass of maps for which he has no special use.

Nevertheless, such maps as already exist are valuable as giving one the general layout and topography of the country. The automobilist who desires to get a fair list of such maps as are to be had at this time—both American and foreign—with a careful selection from the entire field of them, might find it worth while to send for the catalogue of pocket maps issued by Brentano's,

Union Square, New York city. Use the maps as a general introduction to your subject and work out the details in your own way, always allowing a generous margin not only for original error, but also for changes since their publication. Many are undated except as the date of their copyright is given. Fortified in this way, if the ready man finds himself at almost any point, with much or little time to spend touring, he can make his plans in short order. As one's self-mastery over the subject advances, too, the difficulties in the way of making up touring schedules relatively diminish.

Dressing for Clutches

An excellent clutch dressing can be made by mixing castor oil and commercial glycerine in equal proportions. This should be done by placing the ingredients in a large stoppered bottle and well shaking them from time to time. The dressing should be applied to the leather as thinly and as evenly as possible. Experience shows that this dressing keeps the leather nice and soft, and yet prevents it from screaming when the clutch slips, while at the same time it retains the full gripping power necessary to drive the car. With this dressing it is perfectly safe to slip the clutch to admit of the engine picking up a little when negotiating gradients, thus permitting the car to overcome them without the necessity of changing down to a lower gear, the latter being necessary only when climbing hills that are more than ordinarily steep.

Was Thinking of Former Exploits

"Did you hear about Scorchers' first words when they brought him to after the railroad accident?"

"Did he ask if his car was hurt?"

"No; he said he'd swear he wasn't going more than eight miles an hour."

Military Automobiling In The Philippines

BY
ROZEA
RIZAL



THE introduction of the automobile into the Army of the Philippines has begun, and is rapidly extending. The ordnance, engineering and signal corps each have automobiles, and they are constantly experimenting with the vehicles under the severest possible service conditions. Since the American army has been quartered in these islands of the Philippines, one of the most serious questions it has to meet has been how to effect transportation to best advantage. Heretofore the transfer of quartermaster, ordnance engineering and other property, together with subsistence stores, baggage, company property, troops and the like has been effected in several ways. Each one of which was unsatisfactory. The crudest of all the methods of transportation has been by native packers,

two of whom, with a pole resting upon their shoulders, were capable of carrying about eighty pounds. This style of transportation is about the only kind possible for trail work, and there are more trails than any other form of road. Following the packmen comes the native pony trains, and after them the army mule pack trains. The caribou carts system is available where trails are replaced by roads, but at its best it is very slow for the moving of stores, and is resorted to only when necessity compels it, and none have tried it other than to regret it when stress of circumstances has forced the army to employ the native with his water-buffalo and cart for the moving of property of troops in these islands. In the regular order of progress and transportation in the service comes the escort wagons,

which are, of course, as good as those used in American service.

Where speed, lightness and readiness for service are demanded the army depends for transport upon the spring wagons and the ambulances.



Starting for Road Inspection

Often the latter have to be utilized for the moving of officers, with their families, and baggage over the long routes between stations in the Philippines, solely because there is absolutely no other means of vehicle transportation. The spring wagons for moving passengers

and luggage compete more directly with the automobile than any of the other modes of transportation. The caribou cart for heavy transportation will no doubt be used for some years in these islands, at least until all of the posts are fully furnished with escort wagons or motor vehicles of sufficient strength and power for the rough service they must be capable of here. I have found that there was a very good opening for an automobile outfit in nearly every station of the islands. There are some

to three automobiles in each of these stations the transportation facilities for the service would be greatly increased and expedited without very much additional cost. In the large camps, like Stotensberg, Luzon, where a regiment of troops is quartered, with the post a mile long, two or three automobiles would be of great service in saving the time and energy of the officers, the orderlies, the various details, etc. In the battalion or company posts one machine would be



INTERESTED ONLOOKERS ALWAYS PLENTIFUL

two hundred important stations where troops are located and where the roads have been put into very good condition for travel over by any type of vehicle. In every one of these posts you find the quartermaster's stables or the corral with the usual equipment of light wagons and escort wagons. In addition, there are also native corrals for the accommodation of the natives in the employ of the United States who run the caribou carts. If there were from one

ample for local traffic and for use in making occasional trips "to the town." As it is now, the lumbering escort wagon and the light wagon must often be hitched up for moving officers or soldiers and luggage, whereas an automobile, with space for carrying a trunk or two, could be used to a greater advantage, being both quicker and easier to handle. In fact, all this is already recognized at different points in the islands, and now one quite often sees

the automobile skimming along filled with khaki-clothed soldiers, or officers. The signal corps uses the automobile almost entirely for inspecting its lines of communication, carrying complete equipments in the bottom of the vehicle for repairing or even installing lines. A full set of tools is put in, three or four linemen or operators get inside, and away they go, one of the party running the machine. They enjoy the trip, and whenever a detail is required to go by automobile into the country from Manila, for example, to examine the lines, there is always a rush to get on that detail. Formerly the men secured native ponies in some way, or failing to do this they resorted to the much detested "hike," for which I have never known any rush of volunteers to occur. I have studied the automobile in its use by the ordnance corps stationed in the city of Manila for some months, and have had the men in charge of the machines, and others who use them, tell me the advantages of this means of transportation over any other the army has tried. With not an exception these people say that the automobile should be a regular institution in the army, particularly in foreign service in a country like this or Cuba, where the roads are open during the entire year, and where as a rule transportation between stations is absent, because of few railways, and fewer livery stable accommodations. In such countries one has to provide his own transportation in most cases, and those who have used the automobile declare it is what should be provided. The engineering corps has found that nothing is in the same class as the automobile when it comes to getting over the roads for inspection purposes. The officer or non-commissioned officer in charge of bridge erection, road making, etc., can with the automobile attend to his varying working details with ease,



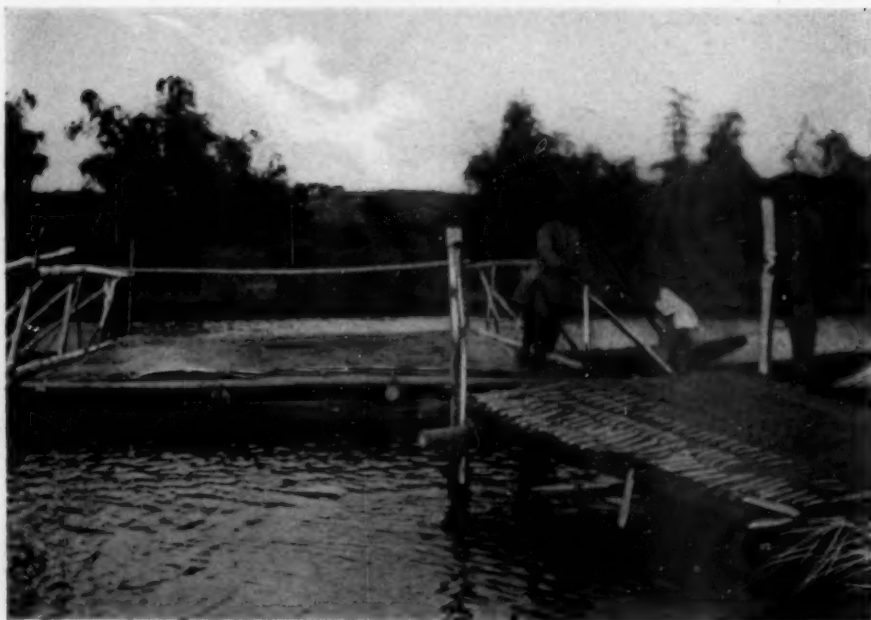
One of the Stations



Sample of the Native Transports



Signal Corps Inspection Car



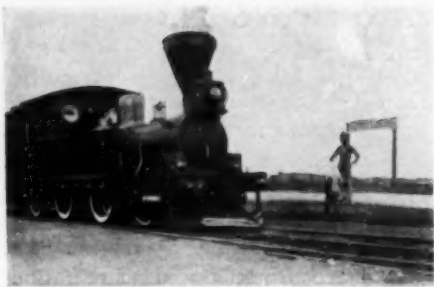
THE KIND OF BRIDGE AND FERRY WE USE

and carry with him at all times the necessary equipments for surveying, measuring, etc. This he cannot do very readily when he is compelled to depend upon the small pockets of his saddle for conveying the instruments. Through the entire army there is only praise for the motor vehicle wherever it has been tried. There are already quite a number of the vehicles in the service which, as a rule, the ordnance corps men, with their mechanical training and ability, find no difficulty in keeping in satisfactory running order. Yet, were there no ordnance men it would matter little since in every regiment, company or troop, there are always men of mechanical training, whom when the machines are introduced more generally, there will be no trouble in detailing a machinist to care for the automobile. There are tailors, barbers, carpenters, and others detailed in each company and troop nowadays, so there is no reason why the automobile mechanic should

not be a part of the company or troop. This would be a berth much sought after, since the man so detailed would be excused from drills, fatigue duty, and guard. Standing inspection only. He would draw his extra duty pay in addition to his wages as a soldier. Like the barber or the laundryman of the company, his cot would no doubt be in



Competent Repairers at Hand



An Island "999"

the back of his shop, though he would mess and stand inspection with his comrades. The day of the automobile in the army is fast approaching. The start has been made and inside of another five years there are going to be some notable changes, because high officials are seeing the usefulness of the machines, and certainly there is very little doubt but that in a few years there

will be an automobile corps. It is hardly necessary to argue on the line of saving to the government, for it is already known that the introduction of an automobile in a post brings about numerous savings in transportation. Horses are expensive, and hard to keep in this climate. The iron horse is not affected by the climate, and what he eats is less bulky, expensive and perishable than what the horse must have.

Manila, P. I., December 19.



My Rival

By Eunice Blake

I'm most dissatisfied with Dick—

I don't suppose he'll ever know it—

His conduct cuts me to the quick,

And yet I'd rather die than show it.

My maiden meditations are

Disordered by one constant riddle:

Why should I—to a racing car—

Play second fiddle?

In vain I toss my curls to show

The sweetest pair of turquoise earrings;

His thoughts are wandering, I know.

With mufflers and friction gearings.

If I could find some magic drug

To change me to a carburetter,

A cylinder or sparking plug,

He'd like me better.

And when I sing of tears the rest

Entreat for more and praise my brilliance,

But Dick returns with cheery zest

To themes of rubber and resilience.

When rosy dusk to moonlight melts,

And all have vanished save the lovers,

Is it time to talk of belts

And outer covers?

My amber voile came home to-day,

I'm really too upset to wear it.

My heart is sore, yet, strange to say,

Day after day I grin and bear it.

He doesn't worry if I'm stiff,

Or if I snub or talk above him;

I'd break it off to-morrow if—

I didn't love him.

The Same Old Game

There once was a sporty young Mr.

Who said to a girl when he Kr.,

"Won't you please be my wife?"

She said: "Not on your life;

The most I can be is your Sr."

Choosing an Automobile

By Robert Bruce



THE most interesting and responsible decision in one's whole automobile career is unquestionably the selection of the first vehicle—after that, experience and observation will safely guide. At the outset it is imperative that the would-be purchaser make up his mind what he really needs, or can afford,

since it is no use wishing for, say, a big, showy touring car, if the size of the purse will allow for nothing more expensive than a buckboard or a run-about. One's personal liking for the kind of motive power used is one of the prime considerations.

It is well-nigh essential, too, that some definite idea of what is wanted be had before the perception becomes bewildered by a glittering array of every kind of motor car. First choices made at the big shows do not always turn out as well as anticipated in the first flush of enthusiasm over some particular type or model; while, on the other hand, the most exhaustive study of the makers' catalogues sometimes leaves the novice as far from a decision as before. Then, very likely, the recommendations of an experienced friend come in as a special dispensation. If, unhappily, the choice made under such circumstances be not up to expectations, there is apt to be a sudden loss of faith in advice—and human nature.

The man who buys an automobile in the belief that he has only to press a button or push a lever to fly where and

when he wills must necessarily have a rude awakening. Consciousness of this fact has led one of the most successful men in the business to say something like the following, to his prospective customers: "You are buying some trouble, but you are also buying pleasure in double or triple measure. Upon you depends whether you get all the pleasure that is coming to you, or whether your troubles will be in excess of what they ought to be."

Most buyers welcome such well-meant and wholesome advice as this. The man who will not give a little time to learning the proper management and care of an automobile has little reason to think that his use of it is going to be up to his expectations. As a matter of fact, few people look at the ownership of a vehicle in any such fashion. They are willing to serve an apprenticeship in the beginning; if they are not, a very short experience completely convinces them that in automobiling ignorance is neither blissful nor profitable.

Novices should remember that they cannot become expert chauffeurs in a few days—or weeks. Tires will give out, the machinery will act badly at times and accidents will happen now and then, with other experiences not altogether pleasurable. A true sportsman is never disheartened at these first rebuffs, however, and those who have the spirit of adventure in them will come to look upon such incidents as diversions from the ordinary rides where everything goes smoothly. Even veterans who have mastered the art of automobiling, and have acquired perfect confidence in themselves, are not infallible, as we all know.

The price to pay must have careful consideration, and this depends as much

—or more—upon the use to which the vehicle will be put as upon the size of the purchaser's pocketbook. Do not expect more than your available appropriation can buy, as many seem to do, and come—invariably—to disappointment. On the other hand, it is not well to let two or three hundred dollars stand between you and the machine you really like. It is far better to pay the price asked than to take a vehicle, at a slightly lower figure which, after all, is not quite what you desire or what your expectations really call for. In case it is necessary to surrender something for economy's sake, let the sacrifice be in style and finish rather than in power or durability. The difference in operating cost is not ordinarily enough to influence an otherwise satisfactory decision.

Generally speaking, a serviceable gasolene or steam runabout may be purchased at from \$600 to \$1,200; phaetons and surreys, from \$1,000 to \$2,500; and touring cars, from \$1,200 to \$5,000 and upwards. The cheapest motor-driven four-wheeled vehicle, the buckboard, sells at \$425 for 1904, but this is a specialty and would not ordinarily be considered in a listing of all-around machines. Individual productions break over these lines in plenty; but they remain, nevertheless, typical of the price tendencies of the times for all-American machines. The imported automobiles of all classes command, of course, relatively higher figures, several sales of the gay-colored, richly upholstered tonneau and "Pullman" cars from famous Continental factories having been made at from \$7,500 to \$15,000.

It is important to keep well in mind the difference between "type" and "model" in automobile nomenclature. Of the first there are necessarily few, since type follows the broad lines of propelling powers (by common consent at least); while of the latter there are

multitudes, since model is any particular subdivision of type, whenever or in whatever way it is developed. The only separate types in the United States to-day are conveniently classed as steam, gasolene and electric vehicles, which broad terms are easily understood by the general public.

So great progress has been made in the specialization of these types that a careful choice from among them ought to suit almost any set of requirements. Steam, being the oldest and best known, would undoubtedly lead all others in popularity and extent of use, except for the larger number of parts and the closer attention necessary to a machine of this type. Notwithstanding this fact they are comparatively noiseless, highly efficient and pleasant to use; and so great is the popular liking for and confidence in them that their manufacture and sale increase on uniform and substantial lines. No other class of machine has demonstrated an equally high average of performance in competitive road trials, and one who will take the trouble to qualify as an engineer, by experience if not also by legal form, will seldom forsake the steam machine for any other.

The would-be automobilist who hesitates between steam and gasolene has but to ask himself which of the claimed points, either for or against, affect him the most in the use to which he will put his car. Steam vehicles do not particularly appeal to those who want to make fast and long non-stop runs. On the other hand, to owners who do not care much for high speeds, but want smooth, quiet operation above all other things, and who do not mind an occasional stop for water, steamers have charms which are entirely their own. The gas engine and the electric motor compete with steam as a propelling means for automobiles very much as they do in the industrial world. The former is

a cheaper power than electricity at the present time, requires less attention than steam, while capable of higher average speeds and with a greater range of operation than either. All-around adaptability and a special independence as a touring vehicle (since gasoline can be purchased almost anywhere in city or country), have prepared and apparently secured its place.

Unless particular high speed is required, 12 horse power is sufficient, but 16 horse power and more is essential if great capacity for rapid hill climbing be desired. The moderate-power vehicles require less attention and, of course, cost less for upkeep and fuel than the larger, heavier machines; and for most people they provide as much, or more, real enjoyment than the "flyers." Into this medium-weight, medium-priced class will ultimately come all the essentials of the best possible machine, substantial luxury—little or no show—and the highest quality of service given will yield a wide and general satisfaction. The production and sale of these vehicles must enormously increase within a very few years, for while purchasers for automobiles above \$5,000 are comparatively few, even in this rich, new country, those who might find a perfected machine listing from \$600 to \$900 a paying investment, are numbered by the millions. If comparatively low powers are used, and it is desired to carry four or five persons besides the driver, low gears are preferable, as a better average can be made on all except level roads.

Electricity is an ideal power for automobiles, within its range the simplest, easiest and most satisfactory of all. It is still dependent, however, upon a central station; requires frequent recharging, and is not thoroughly adapted to a moving power plant, such as the motor vehicle really is. But the best electric

carriages are nearly perfect in their special sphere; some time that sphere will be vastly widened, and the changes sure to come with such a development will undoubtedly work great changes in the whole situation. It is interesting to note in this connection that nowhere in Europe has electricity made such headway as it has in the United States; here its largest future is to be, as soon as the problems of carrying and applying the current are fully solved.

The use of an automobile for long-distance touring or racing must of necessity be confined to those who have some means, and can afford to pay for the privileges such vehicles can afford. Yet the expense of purchase and maintenance of an automobile suitable for touring need not greatly exceed that of a first-class driving rig, provided the owner or the man placed in charge of it knows how to protect the machine from unnecessary wear and tear, and is capable of running it economically. An expert can naturally get more out of any vehicle in speed, hill-climbing and power economy generally than a novice. It takes some education and experience to run any automobile with satisfaction and economy. Unfortunately, many of the accidents that happen and the thousand-and-one lesser annoyances—usually due to abuse of the motor—are attributed to every cause but the real one. Manufacturers and their agents are too frequently held responsible for poor results when they are absolutely blameless.

In selecting his car a purchaser should allow some margin between the claimed and the actual horse power of the vehicle. If he wants a machine for regular all-year use he must provide power enough to drive through muddy and dusty roads, as well as through light snow. The feeling that even on the severest grades the engines are not be-

ing unduly strained is very comforting. Of course the horse power must not be mere catalogue figures, but actual, ready to be proved, either in sudden emergency or in long service.

All advances in design and construction to date should be taken into account before purchase is made. Otherwise the novice is likely to overlook something that he is entitled to from the current progress of the industry, and may even be led into accepting a model a season behind. When this is done, it should be thoroughly understood, and invariably accompanied by a substantial reduction in price, amounting to a third or more from the original sales figures. Second and third grade and second-hand vehicles are well enough in their way, but only the best your purse can afford will give real satisfaction. It is the same in the long run whether the machine is required for speed work or for running around town. In buying a cheap article you take the saving out of the quality, and the cheap article takes it out of you in return, requiring more expense for less work than a better grade.

The public in general and prospective buyers in particular should be warned against the numerous schemes that have been introduced into the automobile business. The schemers are the same kind of gentry—in some cases the very same persons—whose undesired presence was a serious detriment to the bicycle trade. "Auction sales," "second-hand vehicles" (in some, but not in all cases), "commission business," "consignments solicited," and the like are some of the signs employed by these fakirs. An advertisement in a New York Sunday newspaper, followed up

by a friend of the writer, led to a downtown place, where an inexperienced repairman was working on an out-of-date steam vehicle. This particular place was inviting "consignments," with a view to auction sales. The best way is to keep your machine until you can turn it over to persons you know to be reliable, and place your orders on the same principle.

With use and room for only one power-driven vehicle, one desiring to get the most out of it will probably find his choice, all things considered, in a gasoline or steam machine of some well-



known make. The best plan is to find out both the type and the system of operation most to one's liking, make the purchase, and then—particularly if without previous experience in that sort of thing—take it up as if it were simply a new course in applied mechanics. The best automobiles are calculated to go into service, if necessary, in that manner, though such information as can be gained from the agent at the time of purchase and through subsequent correspondence with the manufacturer, is well worth while. A few practical demonstrations in starting, stopping, steer-

ing, backing, refueling, and the like should be arranged for whenever possible.

With use and room for two or more automobiles, an electric model becomes a reasonable, if not indeed, a logical part of one's equipment. Unexcelled for a spin of from 25 to 40 miles over good roads in fair weather, it should be reserved largely for park and suburban riding, and not put to hard work over rough and hilly country. The long distance tours that have been made in electrics are encouraging prophecies, however, for those who would like to use this type for all purposes, but now fear to do so owing to their limited radius of action.

The housing of automobiles is an easier and much less expensive matter than commonly supposed. While it is possible to plan a new garage, and thus secure greater convenience of arrangement, this is not at all necessary. The average stable, if it have a level floor space, will do very well, and an automobile will ordinarily take up less room than a horse-drawn vehicle. A gasoline storage tank, graduated measures, a full outfit of tools, plenty of lubricants, and an automobile "jack" may be called essentials. The gasoline tank is usually buried in the ground outside, and the gasoline brought into the building by an underground tube. Special cabinets are already made for the lubricating oils and tools, and these may be purchased separately. For the charging of electrics it is necessary to have either a connection with some central station or else an individual electric plant, the latter of which can now be installed at a minimum of about \$500, for this special purpose.

As a rule it will not pay to keep many duplicate parts—tires possibly excepted—or to attempt to do more than elementary repair work. Before many

years the city and country alike will have first-class facilities for repair-making and storage. Local automobile associations will likewise spring up, a feature of which will undoubtedly be a system of co-operative garages, where the vehicles of members can be stored, cared for and repaired at a reasonable cost. They may perhaps even be provided with chauffeurs in the same manner. Some such plan as this, by lowering the average cost of maintenance, will help to increase the number of owners and users as few other things could be made to do.

Know beforehand the size of the house or shed where you expect to keep the machine, and if at all restricted as to space in these particulars, find out the width of the gateway and any approaches to it. But do not pass over a good vehicle simply because it will necessitate the widening of a gate or the removal of a shrub. The proper choice of an automobile contemplates all these things, and the right solution of sundry little problems will add to the convenience of handling the machine, as well as enhancing the pleasure of using it.

Something Unusual

"May I come in?" asked the careworn shade as St. Peter appeared in response to his knock at the gate.

"What was your occupation while on earth?" asked the veteran gatekeeper.

"I manufactured steam automobiles," replied the applicant.

"Of course they were the best made?" said the old man in a tone that savored of sarcasm.

"No, the worst," answered the mar. outside the golden portals.

And after St. Peter had recovered from the shock he threw the gate wide open and invited the new arrival to enter and take his choice of harps and halos.



THE THEORY AND PRACTICE OF LUBRICATION BY DERO A. NYE

THE advisability of pouring oil upon troubled waters has been deemed worthy of being made into a proverb; the advisability of doing this oil-pouring act upon the frictional points of machinery may not have been proverbial, but it is nevertheless a thing so well known as to need no such reminder as a proverb to keep it well before every owner of machinery.

Take the average owner of an automobile and ask him to define the theory of lubrication and you might as well ask him to supply you with a complete list and translation of the Chinese classics. Yet there is no other one thing which it is so vital for the owner of a motor vehicle to thoroughly understand as this question of oiling up. J. K. Nye once wrote an article on the theory of lubrication reduced to practice, which was published in *Marine Engineering*, and which always seemed to me to explain the whole question in a way which permitted of even the most untechnical, thoroughly understanding. In part, Mr. Nye's arguments were these:

"Oil is one of the necessary expenses of moving machinery, and in many cases its value would be a good interest on cost of the machinery it runs. It is safe to say that not one man in a thousand who deliberately squirts oil into a bearing really has any idea just why the bearing runs easier or cooler; sufficient for him that it does so, and lucky for him that an overload of oil seldom does harm.

"To these men friction means little or nothing, and a surface which is perfectly smooth to the eye is the best that can be made, and the little abrasive points which the microscope would show on such surfaces have no place in their minds, and consequently bear no reference to the use of the squirt can.

"Let any one of these men take a smooth file and press it ever so gently over a hard metal surface, it will do its work perfectly, tearing off little particles of the metal, but still leaving the surface smooth; but let them rub their hands over the surface of this metal and just the greasiness of the skin will so change its condition that the file will no longer bite, but will push over it, even with added pressure, without abrading it. This is one of the prettiest illustrations of lubrication that can be given, and carries with it every principle of friction and lubrication as fundamentally as old Watt's original machine carried with it the principles of the steam engine.

"The tiniest wearing surface of a watch pivot polished and finished to the highest degree and revolving in its jewel has on its surface as perfectly-developed abrasive points as the file, and from this up to the most gigantic bearing of the biggest engine the same condition exists.

"Modern tools of precision have reduced this feature greatly, but even with this precision lubrication is a long way from perfection. If it were possible to standardize these imperfections a certain oil could be made the standard of certain sizes of bearings, but even with accurate tools our shops never turn out one surface just like another surface in its requirements of lubrication, either in

the kind of oil or quantity to be used, and to ask the man in charge to exercise anything like the delicacy of perception necessary to cater to these microscopic variations in abrasiveness would be asking altogether too much of human nature. Thus in many cases manufacturers have found it necessary to so arrange the lubrication that it shall be automatic, and the prettiest practice of to-day is the case where excessive lubrication does no harm and where the waste is caught to be used over and over.

"The lubricants may be roughly classed under two heads: oils and greases.

"The first including almost anything liquid made from mineral, animal, or vegetable.

"Second, any compound of these which may be held solid or semi-solid at ordinary temperature.

"Of course by far the greater proportion of oils are mineral products, known as hydrocarbons, produced from the earth. In marine practice no vegetable oil and very little animal oil is used, although some engineers still cling to the old method of pouring on lard oil; but it is safe to say that no animal oil is ever used on any steamship that could not be replaced to advantage by a mineral oil, provided a careful study of the situation were possible by the man in charge. Animal oil putrefies, or, in other words, oxidizes, under certain conditions, as every one knows, and those conditions could not be more perfect than those found in the engine room, particularly marine.

"Oxidation or putrefaction means a formation of natural acid which absolutely attacks any piece of metal, especially if a minute quantity can be held in a correspondingly sized cavity which by reason of its motion has a tendency to heat; and if any engineer who reads this will stop and in his mind try to magnify

the infinite number of little abrasive points and cavities which must exist, say, on a crank pin with its high speed and tendency to heat, he is then beginning the careful study of lubrication. He will then have at least a glimmering of the direful results which the formation of anything like an acid product would be to that microscopic pit, and, having conceived the damage to this tiny spot, he has but to multiply it by the tens of thousands of such little abrasive pits that must exist in even the finest turned and ground crank pin, to realize the ultimate result.

"Mineral oils, being pure hydrocarbons and non-oxidizable, can never produce this result, although their very lack of oxygen gives them a certain evaporative power which requires a somewhat greater amount of oil. This very evaporative power, however, has a decided advantage in keeping the bearing cool, so that while perhaps a little more oil must be used to take up the evaporative loss, requiring a little more work for the man with the "squirt can," the results on the surface of the metal are far better.

"Engineers who care to, can go even further than to conceive of all these tiny abrasive points and pits, and by studying the phenomena of capillary attraction they will find themselves ultimately asking this question about these little abraded places which exist even in the finest bearing: Why do not these pits draw into themselves a little more oil than their actual volume? This is probably just what does take place. With a power infinitely weak the tendency is to separate the surfaces of the moving metal. While we realize that this separating capillary power is infinitely weak, let us again add our multiplying plan and multiply its tiny force by the millions of such little capillary pits that exist in the bearing. We shall find that

the aggregate force which separates the metals will be enormous.

"Wherever two moving surfaces come together some of these little abrasive points are being constantly torn away, otherwise machinery would never wear out; but of course in some metals they are far more tenacious than in others. It has been found that two dissimilar metals, the one perhaps soft, the other hard, become far more serviceable in their wear and make easier lubrication, like a steel shafting running in a bab-bitted bearing, in which the hard abrasive points cut their own little paths in the softer metal. These little paths fill with the lubricating material, and, exercising their capillary forces, greatly lessen the friction, and by the very nature of the softer material carry off more rapidly the generated heat. With these facts in mind it becomes evident that the higher the speed at which one metal surface is running over another, the thinner the lubricating material needs to be, both for its greater ability to enter the capillary passages and more rapidly its evaporating power to remove the generated heat. Therefore the gravity, viscosity, and fire test (the latter of which indicates its evaporating qualities) which may be used in any particular bearing must be left wholly to the judgment of the man in charge of such a bearing, and it is up to him to understand and choose for the situation.

"So much for bearings; when it comes to the steam cylinder we have an altogether different and far more difficult phase of lubrication. The high temperature of the steam not only changes the nature of the oil, but adds greatly to the ease with which the abrasive points and pits change their nature. Steam itself changes the chemical constitution of the lubricating material, and in the case of compounded oil, which is so

largely used at this day, the very viscosity itself becomes radically changed. Those parts containing oxygen may become semi-solids or even solids, which, filling the little microscopic pits of the metal, allow no chance for the thinner fluid to flow in and exercise its capillary force.

"While for a long time the surface about such a solid filled pit may become brilliantly smooth to the eye, the natural decomposition which will take place rapidly in a high temperature and the presence of watery vapor will gradually deepen and deepen its tiny hole until the inside walls actually crumble away, and in time destroy the fit between the piston rings and the walls of the cylinder.

"Here again the engineer has a wide field for study. The varying piston speed, the wide range of temperature by reason of steam pressure, and even the quality of the iron itself, bear more strongly than is generally supposed upon the system and quality of lubrication, and it is the writer's belief that by far the safest oil for the lubrication of the steam cylinder is an absolutely straight mineral oil. In many cases the steam itself, with its own fluid capacity for capillary operation, is a perfect lubricant, and the only requirement for a more viscous substance is the small portion required to fill a certain number of large or irregular cavities which may exist beyond the power of the water to fill.

"We will return a moment to the subject of bearing. We all know that to turn and perhaps grind an exquisite fit would be far too expensive in most cases, so that many bearings are indeed so loose that, even without being sensibly so, there are large spaces between them and the shaft itself. In such cases the oil will flow away from it directly by gravity, and it becomes necessary to

have some substance far more viscous and with a sort of glacial movement in order that the bearing be filled at all. This is the province of the greases. Such a bearing would not heat rapidly, and at the same time the grease holds sufficient capillary power to keep the shaft fairly well suspended. It would be obvious that such a lubricant would never do for a steam cylinder.

"Another interesting scientific fact some engineers may do well to study is the varying property that different liquids have for resisting disruption, some vastly more than others. A very pretty illustration of this is the old trick of rubbing the edge of a wine glass with the wetted finger. Water has very little power of resisting disruption, consequently it forms little or no film upon the smooth glass edge of the wine glass, and the little abrasive points catch and let go as the finger is moved over them in such a rapid manner that a musical note is sounded; but the slightest particle of oiliness would instantly change the condition and the finger run over without resistance. This is because the oil gathering in infinitely minute drops fills the abrasions of the surface, and, resisting disruption, lifts the finger away from the glass itself. This illustrates one of the principles of lubrication.

"It would not be difficult for any engineer, if he were so disposed, to get from a reputable manufacturer all the information he needed regarding gravity, viscosity, and fire test of every mineral oil. If he would in his mind's eye watch the operation of the little particles of oil as they move in the cylinder or bearing, he would in time get his perception delicate enough to choose, by just this gravity, viscosity, etc., alone, what was best suited to his class and quality of machinery, and, having once attained to that knowledge, no wily drummer could thereafter offer anything

but just what he knew to be the best. If the practice were universal all brands would in time disappear from the market and the oil would be sold by the above-named terms strictly by its chemical constitution.

"There are a large number of chemical compounds sold in the market today by their percentage of useful qualities, and in most cases this is the cause: the evils of an inferior quality show immediately, and the minds of men have become so wary that they have learned to quickly and easily distinguish a proper and improper article for their use, although they have been obliged to study and make use of instruments to be able to make their determination. Unfortunately the evils of an improper oil are a long time in developing. The keenness of perception which a man must cultivate to be able to distinguish the exact quality of an oil against the eloquence of the drummer can only be acquired by close observation and the use of instruments."

Of course it will not be necessary for the automobilist to go to the extreme study of lubricants and use advocated by Mr. Nye, but is advisable that every owner of an automobile see to it that none but the best lubricants are used by him unless he has a greater desire to remain on intimate terms with the repair shop and the hospital than a wise man should. As it is impossible for the ordinary user of oils to know whether he is getting what he pays for it behooves him to deal only with concerns whose reputation places them in the class to which the wife of the late Mr. J. Caesar aspired, that is to say, in the above suspicion one.

It must never be forgotten that in automobilizing, even for two engines of identical size and make, there exists no arbitrary standard of the amount of lubrication required. This depends essen-

tially upon two factors: (1) the work performed by the engine, and (2) the efficiency of cooling it. Dealing with the first factor, generally speaking, less oil is required on a smooth, level, dry road than on a rough, hilly one, this being readily understood when it is remembered that less mixture is used, less heat is generated, and less oil, therefore, consumed in the former than in the latter case.

The aspect from the point of view of the efficiency of cooling is especially important to users of air-cooled engines, and to drivers of engines cooled on the thermo-syphon system ("natural" circulation). Air-cooled engines which are in a favorable position for cooling use up far less oil than those less fortunately placed.

An important point, and one which is frequently overlooked even by experienced chauffeurs, is the relationship of lubrication to compression. When an engine is being efficiently lubricated there is a film of oil between the piston, piston rings, and cylinder wall which makes the joint sufficiently tight to prevent escape of any mixture to the under side of the piston, and so serves to maintain compression. If this film is absent or incontinuous, there will be loss of compression, and since the oil is being continuously used up it must be replaced at the same rate at which it is consumed.

When an engine is first tested at the works before the car is delivered to the purchaser it is literally "flooded" with oil, a proceeding to which we owe the discovery of the action of the spark gap at the Panhard works. Under these conditions the plug, of course, speedily becomes foul, and, as is now well known, it was an observant workman who noticed that when a small external gap existed in the high tension circuit a

spark occurred simultaneously at the plug, no matter how sooty the points happened to be which eventually gave us the soot defying plug.

It is an excellent practice, and one which cannot be too strongly recommended, for the owner of a new car to also swamp his engine with oil until the plug becomes foul, utilizing the spark gap to obtain regular firing. He should then gradually reduce the quantity of oil until a point is reached when the plug no longer becomes foul, whereupon the ideal lubricating point for ordinary conditions of work has then been found—that is to say, the point at which the engine is taking all possible oil without danger of sooty deposit on the valves, piston, or plug resulting. But it must be remembered that, for maximum efficiency, the amount of oil supplied to the engine should vary somewhat, as already stated, in proportion to the work. Most makers prefer to recommend some particular brand of oil for their engines, and an extended experience has convinced me that their advice should always be followed. Should trouble be caused on the road by fouling of the plug through excessive lubrication, when no spark gap fitting is handy, the excess of oil must be burnt out of the cylinder. To do this the inlet valve or the plug (preferably both) are removed, and a few drops of gasoline are poured into the cylinder, a light is then applied. The cylinder should be allowed to cool before pouring in the gasoline. Of course, such a procedure requires great care, or a conflagration may result.

Never run an engine without oil. If the supply gives out on the road, get any kind that is obtainable; even salad oil will do, in lieu of anything better. Finally, to condense all into a brief statement, it is better to over than to under lubricate.

Seven Pages of a Diary

By Y. A. P.

MONDAY—Received the new automobile I bought at the show to-day. It's the real thing, all right! They were all on to me as I swung up the avenue on her giving the go bye to about everything on wheels I came across. Of course I haven't got the hang of chauffeuring, as I will later on, but I guess I can about hold my own with the Frenchmen at that. Had a little difficulty with a motor man crossing Twenty-third street who persisted in pushing his darned old car right across the avenue just as I was coming up it. Motorman swore. I grinned. Then he swore a lot more.

Tuesday—On the avenue again just to test my nerve. Ran slowly and hugged the curb. Gave one of those red-faced English coachmen, who was driving a skittish pair of high steppers, palpitation of the heart by crossing in front of him suddenly. He wanted me to come back and fight him, but I couldn't have stopped just then if I had wanted to. Got out to the park finally and tried to enter. The entrance must be all of 100 yards wide, but it seemed a good deal too narrow. Got in after awhile by running up on a flower bed. A sparrow cop saw me and came over and asked me what I meant by it. I said I meant to back off. I reversed her so suddenly that I nearly knocked him galley west. This disturbed me so that I threw the wheel over and at once whirled about and started out of the park full tilt. She ran a block before I could pull myself together and turn her around. But I got home all right.

Wednesday—Just beginning to really like it. Can't see very well through my eye protectors, but, of course, it's the proper thing to wear 'em. A fire engine was working in the avenue as

I passed up to-day. I didn't know how the car would behave. Don't think she had ever seen a fire engine before. We got by beautifully, however. Put on a little more speed as we passed and almost ran over a dago with a banana wagon. He was almost black, but turned pale at the danger. Went out as far as Maud's and then made a beautiful turn and came back. Hope Maud saw me.

Thursday—Am acquiring more nerve. Cut loose several times to-day. Caused a grocer's horse to run away and juggernauted a dog. Got into a ditch and had a deuce of a time getting out. There is a good deal yet to learn about this steely speed. Met Charlie Gage with his flyer. We had a lively brush. It ended by my crowding Charlie into a mud hole up Westchester way, where he stuck fast. I had to tow his machine back into the highway. Am getting more and more fascinated with the sport.

Friday—Great day. Went further and rode faster. Dodged two Long Island constables and butted over a policeman. Ran down six chickens and chased a strange cow two miles. Man came out and shot at me for knocking down his calf. Missed. Heard him swearing dreadfully. Looked back and saw that he was vigorously rubbing his shoulder. Guess the old gun must have kicked. Nearly knocked a tollgate house into kindling wood. Went by Maud's home like a small whirlwind. Machine was so anxious to show off that it ran away. Maud couldn't have known me from a gray streak. Went around side streets so as to escape the unwelcome attention of any policeman who might be looking for me and finally reached home in safety.

Saturday—(Note: "The owner of this

automobiling diary was brought into the hospital to-day suffering from the too violet descent of the hill running down to Weehawken ferry, coupled with an abrupt stop at the bottom. He has a fractured nose, a lacerated ear, three

scalp wounds, six assorted contusions, seventeen widely scattered bruises and twenty-nine classified abrasions. He will be lucky if he leaves the hospital in less than six weeks.—Reddy Cutter, house surgeon.")

Points on Ignition

By René Davidson, M. E.

THE spark of life in a gas engine is that elusive, over-the-wire flash which explodes the cylinder charge and makes of the gas engine either the most perfect light motor in the world or else the most annoying alleged power giver that man has ever seen. It is the part of wisdom then, no less than of necessity, that the creation and the transmission of that life-giving spark be as perfect and as unimpeded in its action as possible, so the wise man looks well to his batteries and the products thereof.

The life of a battery depends on the chemicals of which it is composed; or, in other words, on its ampere hour capacity; on the number and voltage of cells connected in series; on the internal resistance of the cells; on the speed of the engine and number of hours which it runs per day; on the design of the igniting mechanism—that is, on whether or not the sparking points make contact every other revolution or only at times when fuel is admitted; on the length of time points are in contact; on the resistance and efficiency of the spark coil; on the insulation of the sparking plug, and on the resistance of the external circuit.

By ampere hour capacity of a cell is meant the quantity of current, measured in amperes, which a cell will furnish for a definite number of hours. Thus, a 300-ampere hour cell is supposed to be capable of furnishing a current of one ampere for 300 continuous hours. Dry

cells are not regularly given an ampere hour rating for the reason that individual cells vary greatly and, moreover, it is difficult to determine their capacity since, on account of rapid polarization on discharge, it is impossible to take a constant, continuous current from them.

Much depends on the internal resistance and number of cells connected in series. Many have an idea that the more cells they connect in one series the longer the battery will last, while, in reality, just the opposite is true. The current flowing from the battery depends on the resistance of the external circuit and the internal resistance of the cells and on the voltage of the battery as a whole. Adding additional cells does not change the resistance of the external circuit, but the additional pressure does not tend to force more current through the circuit.

If the internal resistance of the battery is small and discharge takes place under similar condition, it is fair to say that ten cells will run down just twice as quickly as would five. Hence, it is evident that it would cost just four times as much to keep up a ten-cell battery as it does to keep up a five-cell battery. If the ten cells were connected in two rows, and the ends of rows joined together—that is, in multiple series—they would last twice as long as if but five cells were used, as in this case the voltage across the terminals of the battery

is not changed and the total current flowing is simply divided between the two divisions of the battery. If the cells have a high internal resistance the above deductions apply only in part, for the voltage of the battery as a whole is not increased in amount equal to the sum of the voltage of the individual cells added.

That the life of a battery depends on the speed of the engine, number of hours which it operates per day, and on the frequency with which the points make contact is so self-evident as not to need discussion.

Many engines are faulty in design, in that they permit the sparking points to be in contact for a considerable portion of a revolution before they are actually separated to produce the spark. If the battery has a tendency to polarize rapidly the resulting spark may be very weak, simply due to the fact that the battery has given up its best current before it is called upon to produce the spark.

Much depends upon the spark coil used. For economical ignition a good spark coil is imperative. It has been shown that the current flowing depends directly on the resistance of the spark coil and external circuit; that is to say, if the resistance be doubled, but half the current will flow, and hence the battery will last just twice as long. To renew the average battery just once usually costs more than the price of two or three good spark coils, yet some engine builders will persist in sending out good batteries and cheap coils. That the cheap, low resistance coil will give a good spark one can rest assured, but the fact must not be overlooked that the spark is produced by the large quantity of current which flows, due to the low resistance of the coil, and not by the efficiency of the coil itself. On the other hand, with a high resistance coil which costs little additional, it is possible to

secure just as good a spark, but with the use of just half the amount of current.

A few words on just what constitutes a good coil may be of value. First of all, the coil must be correctly designed. The long, slender 8, 10 and 12 inch coils are wrongly designed. They are utterly at variance with the laws of electro-magnetism. The short, bunchy coils should be used.

The following simple experiment will assist in demonstrating this fact: Lay a sheet of stiff paper, a plate of glass or other non-magnetic substance, on top of a long, 10-inch spark coil and connect the coil to a battery. Sift fine iron or steel filings over the paper or glass and tap it gently. Immediately the filings will arrange themselves in the lines of force which travel around from one end of the coil to the other. First of all, it will be seen that all the lines have a long distance to travel, and a great number of the lines do not bridge clear across, but simply radiate out from the poles. A further inspection will show that the magnetic poles lie inside the copper winding of the coil. It can be proved that when this occurs the spark cannot be as good as the spark which would be produced were the metal of the coil disposed more advantageously—that is, to have the coil designed so as to have the poles located outside the copper winding.

Repeat the above experiment on a short, thick coil. One can see at a glance that a far greater number of lines swing around from pole to pole, and that the poles themselves lie well outside the copper winding. The intensity of the spark depends on the interval of time required to break the current by the igniting mechanism and on the magnetic lines which pass around the coil.

The copper wound on the coil should

be carefully insulated, and the whole should be as near moisture proof as possible, otherwise the coil may become short circuited. A good insulation is obtained by running the covered magnet wire through hot paraffine just as the wire is wound on the coil.

The core of the coil should be made of moderately small, carefully annealed iron wire. The size of the wire is not nearly so important as the quality of the wire. The best coils have cores made up of imported Norway iron wire. If the core wire is hard it may in time become permanently magnetized, and thus render the coil useless. If a coil has a moderately soft core it may produce a good spark with a slow speed

engine, but for high speed work it will be of no account, due to the fact that it is not capable of demagnetizing in the time interval between sparks.

From the above it is evident that the cheapest coil is the best coil, or the coil which has the greatest resistance in its copper winding, and yet will produce a good spark. A properly designed coil may have a resistance as high as one ohm, provided the battery furnishes current at from three to four volts.

The insulation of the spark plug should be carefully tested from time to time, otherwise the battery may be rapidly discharged by the current leaking across a film of rust which has been formed across the insulating material.

To My Old Runabout

By Merton Mayhew

You would get no prize, I know,
Dear old thing, at auto show,
And good reason!
But you passed through sorry days
Since I learned your playful ways,
That first season.

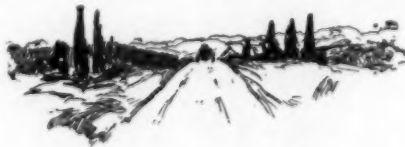
And you weren't so very fine
When I caught the dealer's sign:
"Second-handed."
And I paid for you, my dear,
In instalments, which I fear
He demanded.

From the time the daffodils
Set their crinkled yellow frills
Flaunting gaily,
And from time of vi'lets bloom
Till the golden rod's dark plume
Darkened daily,

You and I were comrades true—
You to me and I to you
Faithful ever,
Through the sunshine and the day,
Storm and sun we kept our way
Close together.

Now as winter lifts its wing
From the breast where sleeps the spring,
I have sought you,
Just to tell you not to fret,
Or to think I have regret
That I bought you.

Were you sorrowful, old friend,
Waiting, in the dust, the end?
Let me tell you:
Not for any other automobile
That the season can reveal
Would I sell you.



Loss of Compression

By R. J. Felton

POOOR compression is a constantly recurring trouble in internal combustion engines, and it is not always easy to locate the source of leakage. Good compression and engine efficiency are synonymous terms. The compressed gas must leak away at some point, provided that the engine castings are sound; the sources of this leakage are either via piston rings, exhaust valve, inlet valve, inlet valve joint, or the point of cylinder cover. Leakage through a broken sparking plug porcelain or through a defective compression tap is easily located.

Piston ring leakage may occur in many ways, and is more often due to their constructional defects than to the ordinary wear of working. Consider for a moment. As engineers we insist upon the cylinder bore being practically perfect, both smooth and circular; but why are we not equally accurate in turning piston rings? They are turned and bored circular, mostly with a thick and a thin side; then we cut a gap out of them at their thinnest part, producing ends hardly strong enough to resist breaking; finally we close up the gaps, which makes an oval set of rings which we compress into our circular cylinder, and trust to themselves bedding to the bore thereof.

Such rings must spring unequally to the circular cylinder, resulting in excessive wear upon such parts of the rings as spring hardest to the wall until they have bedded themselves, which opens the saw cut to a gap, thus producing another way for gas leakage, the last condition being worse than the first, particularly if the rings should turn round all gaps in line, for they are always cut in the thin sides of the rings where the rings wear narrowest side-

ways in the piston grooves; hence it is obvious that such rings contribute to an oftentimes serious leakage of compression through the saw cut gap and behind the thin part of the rings via the piston grooves. I contend, as a man who considers himself competent to speak on the subject, first, that piston rings should be of equal sectional area all round, to provide for equal wear sideways in the piston grooves; hence they should be bored and turned concentric, not eccentric, as is the usual practice. Second, after rings are bored and turned nearly to finished diameter, the gap should be cut out, the rings sprung close and held in that position at the points while they are finished circular to piston and the bore of cylinder. Thus we get rings of equal section, fitting equally deep into the piston grooves, which tends to equal wear sideways, and, most important, a practically perfect fit into the cylinder bore. I have turned scores of rings in this manner years ago in steam engine practice; it is a matter of surprise to me that such accuracy is dispensed with in internal combustion engine practice.

Concentric turned piston rings, being stronger at the saw cut, are not liable to chip at the points as other rings frequently do, especially when pegged at the saw cut to prevent turning round in the piston grooves. Pegging rings which are thin at the points only further increases the liability of the points to chip off. However, it is questionable if it is worth while to peg any rings in the piston grooves; certainly a properly constructed ring does not need it—it is sufficient, as a rule, to space the saw cuts equidistantly from each other. But in sawcutting three rings for a piston there may be an advantage gained by

cutting two of the rings angular in one direction, and the center ring angular in another direction, thus giving at least a zigzag course to the compressed gas attempting to escape in the unlikely event of all saw cut gaps getting into line.

Having indicated the faults in piston ring construction, the remedy is obvious, though it costs considerably more time and trouble to make concentric circular finished rings than to make the eccentric oval finished rings.

Exhaust valve compression leakage may also occur in several ways. The valve stem may be bent just beneath its head where the heat of the products of combustion has burned and so weakened the stem. In such a case it will usually be noticed that the valve head and valve seating will also be more or less burned. Now, before attempting to grind in any exhaust valve, it should be ascertained if the stem is perfectly straight, by revolving the valve between the centers of a lathe, or, if the valve lacks center holes, by revolving its stem in a groove filed across an iron block. If the valve stem is bent, it should be straightened; and if it is burned and bent just beneath the head, and straightens there quiet easily, it should be thrown on the scrap heap, because it is evident that the burning has taken the carbon out of the steel stem and left it like common wrought iron, in a condition to easily bend again.

Exhaust valves stand the heat much better if the heads are of cast iron; indeed, more reliable exhaust valves may be made in the repair shop than many of the valves supplied by the makers of the engine. These heads should be made of close-grained cast iron. Get a length cast on end, to avoid blow holes; portions may be roughly turned and cut off the best end of the casting, then drilled in the center, tapped, and

a steel stem screwed into them, allowing a portion thereof to protrude through the head, on to which a nut is screwed up to the head and riveted there. The bend is then turned up with its stem, the latter being tapered just beneath the head as much as the proper closing of the valve will allow; it is then ground into position on the seating, first taking care that the seating is in good condition, and if it is not so, then the seating must first be trued up by means of a rose bit cutter, which may be made in the workshop. This cutter should be made from a long piece of solid steel, with a large number—and preferably an odd number—of cutting edges to suit the taper of the seating; beneath the cutting portion the steel is turned small enough to fit and be revolved in the valve stem hole, as a guide while cutting; above the cutting portion the steel is turned to fit, and be revolved in a special temporary gland constructed to suit the design of the engine. Corn emery is an excellent medium for valve grinding, but the faces should be finally finished with pumice powder.

Exhaust valve stems are usually too small in diameter in the older type of engines; therefore, in renewing a valve as described, it is advisable to make a thicker steel stem, and bore out the guide hole to suit it if possible.

If an exhaust valve is properly ground on to its seating, it will retain compression for a much longer period than if this seemingly simple operation is carelessly performed. The valve face and seating should not be too wide, and the faces should be ground together so as to fit the hardest upon that portion which is nearest within the combustion chamber; thus the compression cannot start to escape; whereas if the valve is carelessly ground, it may fit all round the outer portion of the faces, but yet have a slight space between that portion

of the faces which is nearest within the combustion chamber, thus permitting the exploding gas to insinuate itself between them, with the result that the valve is soon in a leaky condition again.

Inlet valve compression leakage may also be due to several defects. Let us take it for granted that the faces are a good ground fit, finished with fine pumice powder and oil; and although inlet valves need less frequent attention in this respect than exhaust valves, yet the remarks are the grinding operation are equally applicable to inlet valves. As an automatic inlet valve has a much weaker spring to hold it closed than an exhaust valve has, and usually a much shorter guide hole for its stem, it is therefore essential that its stem should be a good sliding fit in the guide hole, otherwise the valve will "rock" upon its seating when closing, and will continually leak compression in that condition, more especially if its spring is fitted in such a manner that it tends to pull the valve stem sideways in the shaky hole. These latter remarks are not so applicable to the mechanically operated inlet valve, seeing that it is closed by a much stronger spring; indeed, it might be considered too premature at present to speak of repairs to such a modern innovation as the mechanically operated inlet valve, were it not true that it has operated for so many years in stationary gas engines, and has been known to leak compression quite as much as the automatic inlet valve if not lubricated and kept in accurate working condition.

A very insidious cause of compression leakage, oftentimes difficult to locate if unsuspected, results from the inaccurate turning or machining either of the joint faces of the inlet valve body, or of the gland, or other similar contrivance designed to fix the valve down. If this gland is not true upon its face, and is stronger than the valve body, it will

slightly strain or bend the valve seating out of circularity when screwed down, thus allowing a leakage between valve and seating not at all apparent when the screw pressure is removed and the valve taken out for examination. The remedy is to true up the faces upon which the screw pressure is applied, so that they fit fairly upon each other, and also to see that the copper asbestos washer is in good condition if one exists under the valve.

Personally, I consider the mechanically operated inlet valve preferable to the suction valve, although very plausible reasons may be submitted for or against either system. For instance, the mechanically operated inlet valve opens exactly at the commencement of the intake stroke, thus admitting the maximum amount of mixture to the cylinder, but the suction valve requires the piston to recede a little to produce a partial vacuum before atmospheric pressure opens its spring to commence intaking the charge, and although the mechanically operated valve has the disadvantage of extra cost of the additional cams, etc., to operate it, the suction valve has the serious and most troublesome disadvantage that even if the correct weight to compress the spring of a suction valve for any given engine is known to the repairman (which is very unlikely) it is most probable that the spring will continually weaken in work, and as the compression, and consequently the suction, are constantly altering slightly, it is practically impossible to maintain an automatic valve spring at that correct strength which shall at all times be most suitable to the efficient working of the engine. An inlet valve spring which is too weak is indicated by a small amount of cylinder oil getting into the mouth of the mixture supply tube.

A seven horse power two-cylinder car

was recently examined, the owner stating that it lacked power, and would not climb a hill. After we had ground in all the valves the compression was much improved, but still it was better in one cylinder than in the other one—due, no doubt, to piston ring defects which there was not time to remedy; but still the engine would not pull well, and upon the defect being traced to exist in one cylinder only, the inlet valve springs were tested to be of equal strength against each other, and after various experiments in running the engine, a new spring twice as strong as the other one, was finally fitted to the inlet valve of one cylinder. This cured the trouble for the time being, but it is most unsatisfactory to consider that such a condition cannot give permanent reliability to that engine; whereas with mechanically operated inlet valves one can always be sure of the exact point of their opening and closing just as in the case of an exhaust valve, but it is essential that the operating cams are correctly designed for rapid closing of the valve at the end of the piston stroke.

Still another occasional source of compression leakage is via the cylinder cover joint; this is usually easy to locate, but there are many old type twin-cylinder engines, the cylinder bores of which are so close together that the narrow space between them makes it difficult to preserve a gas-tight condition, and to prevent the compression escaping undetected either from one cylinder to the other one, or from either cylinder into the water jacket, and, vice versa, a leakage of water into the cylinder at each suction stroke. Although it has been experimentally demonstrated that the explosive force of the charge within an internal combustion engine may be somewhat increased by the addition thereto of such substances as picric acid, and also by small quantities

of water injected into the cylinder to be instantly flashed into steam, yet I think that as repairmen we are more wisely advised to avoid for the present such aids to trouble, by keeping both picric acid and water out of our cylinders.

Undoubtedly the best cylinder cover joint is produced by scraping and grinding the two faces together into practically perfect contact, and then screwing the cover down with merely a film of doubly-boiled linseed oil between the faces. Unfortunately there arise so many untoward circumstances in the life of multi-cylinder engines—not the least of which is unequal expansion of the faces, caused by the heat, resulting in a face-to-face joint always leaking at some spot sooner or later. However, when such leakage is discovered, it is by no means necessary to go to the other extreme, and insert a thick asbestos joint. If the faces are in a very bad condition, and time, or the repair price, will not allow of their being refaced, a good temporary joint may be made with very thin cardboard asbestos soaked in boiled linseed oil; but a better joint may be made if the faces are fairly good by cutting a joint out of best quality white drawing paper well soaked in boiled linseed oil, and if the leakage has been from one cylinder to the other through the narrow joint between them, I have made certain of stopping such leakage by smearing also some very thin red lead upon the narrow space only, because that space in old-type engines is always overheated, as the water does not circulate between the cylinders.

Insult

"Now," muttered the tourist, as the laboring motor brought him nearer the great St. Bernard, "now things have come to a pretty pass!"

A Five Hundred Mile Auto Test Run, January, 1901*

By Hiram Percy Maxim

IN making this run it was the object to make certain engineering determinations which were only accurately obtainable in actual service. No attempt at establishing or breaking any kind of a record was intended.

The vehicle used was a Columbia gasoline runabout, having a total weight ready for duty of 1,640 pounds. In this weight was included eleven gallons of gasoline, one gallon of lubricating oil, a fully equipped tool box with tools and spare parts, complete equipment of head lights, cyclometer, rear groom seat and boot. With two passengers weighing in ordinary clothing 325 pounds, but in extra clothing, furs and blankets, 400 pounds, the total weight during the test run averaged 2,040 pounds, or roughly one ton.

The motor was of single cylinder and Otto cycle. The cylinder dimensions were 6.4 inch diameter by 6.8 stroke. The complete engine with 19-inch fly wheel weighed 150 pounds. In this weight was included the engine governor, carbureter with piping, accelerator, and water-cooling pump with necessary piping ready for duty.

A brake test made prior to the run gave at the fly wheel of the engine 5 H.P. at 750 r.p.m. The vehicle wheels were 32 inches in diameter and fitted with 3-inch pneumatic tires. The gear reductions from the engine to the driving axle were three in number for ahead and one for reverse, and were respectively 15.2 to 1, 7.8 to 1, and 4 to 1, and for reverse, 13.89 to 1. The engine speed at 20 miles per hour; vehicle speed was 850 r.p.m. on the 4 to 1 gear.

[*Mr. Maxim's story covers the first exhaustive road test given a gasoline automobile in this country. The run took place January 18-20, 1901. In view of the wonderful development of the American gasoline car during the last three years, the article makes remarkably interesting reading at this time.]

The engine aspirated the necessary amount of gasoline to give it its gas mixture at each suction stroke. It was governed by an automatic throttle governor which partially obstructed or left unobstructed the suction pipe between the engine and the aspirating carbureter. The governor could be by-passed for getting a maximum speed of the engine by pressing a button located in the floor.

On January 18 (1901) the weather turning cold and weather reports promising storm, it was decided that the desired conditions for the test intended to be made would probably be realized. It was decided to make preparations for the run and to start the following morning. The run was to consist of ten round trips from Hartford, Conn., to Springfield, Mass. Runs were to be as continuous as relays of drivers and passengers and the necessary measurements would admit. The distance for each round trip was 54 miles, making the total for the test 540 miles.

The low temperature was counted upon to insure the roads being frozen and as rough as they ever could be. The promised storm was counted upon to bring about weather conditions which would give the desired atmospheric variations. To get as varying driving conditions as was necessary to represent severe service, it was decided to change driver and passenger at the completion of each trip. Furthermore, as the weather was extraordinarily cold, this arrangement would reduce the danger of frostbites, personal injury and general discomfort. To insure promptness and avoidance of delay in starting each trip, it was decided to run on a time table, instructing all drivers to adhere closely to it and as far as possible to arrive neither before nor after specified times.

This arrangement permitted each new crew to arrange their dressing so that no delay would be caused the automobile, or, on the other hand, force the crew to wait in heavy furs and their necessarily uncomfortable head gear. Considering the fact that an inch of exposed cuticle would be unsafe, that heavy caps and glasses had to be worn, and that the hands had to be encased in the thickest of gloves which made the fingers entirely too clumsy for readjustment, these details were of the greatest importance.

Small cards were made out and furnished to each driver. On these cards appeared his time for departing from the Electric Vehicle Co. factory, Hartford, time for passing each town en route, and time for arrival back, so that there was no excuse for his making mistakes or misunderstanding instructions. Explicit orders were given to adopt any expedient rather than stop the engine. It was thought that conditions would unavoidably be met on the road when it would be necessary to voluntarily stop the engine, but it was desired to reduce the number of stops to the absolute minimum. Later, experience proved that all sorts of inconveniences and delays were caused by a desire to keep the engine running.

Everything about the automobile was prepared the night of January 18. At 6 A.M. Saturday, January 19, the writer, with Mr. F. A. Law as passenger, was to start.

When the appointed hour arrived it was found that the temperature had fallen during the night to zero, that it was as dark as at midnight, very cloudy and with rising wind. Respecting the weather forecast and knowing from past experience what was probably in store for us, extra precautions were taken to wrap carefully. By the time this was completed and we were ready to start, twenty valuable minutes were lost. We

finally passed out of the factory door at 6:20 A.M.

Immediately unexpected difficulties arose. Our automobile glasses warmed on the inside by the heat of our faces, and meeting the fierce wind from the outside, immediately became coated with frost. In my own case it entailed an entire stop and undoing of headgear to get at my glasses to clean them off—a thing most discouraging to contemplate, considering the bitter wind and the fact that we were already twenty minutes behind time. Hoping to find that the frost would reduce, I decided to keep on. One eye-glass, the right, was almost entirely frosted over. The left was not as bad, having an open space at the bottom through which, by lifting my head, I could see fairly well. As it turned out I never obtained a better view than this for the entire 54 miles, coming in finally, feeling decidedly cross-eyed.

The machine was found to be in superb form. Running through the dark with the roads entirely forsaken and with the first streaks of dawn commencing to show in the east was most exhilarating. All speed was crowded on, although the schedule in order to allow for frightened horses, bad roads, night running and general contingencies had been made for only 13 $\frac{3}{4}$ miles per hour. At Windsor, seven miles out, we had gained five of our twenty minutes; at Windsor Locks, thirteen miles out, we had gained another five, passing there just ten minutes behind time. At Enfield Bridge we had gained another five, and as we ran on to the South End Bridge at Springfield we were exactly on time, notwithstanding a bad contretemps with a couple of women, a sleigh and a vicious horse. This latter not only spoiled our continuous trip, but forced us, in order to avoid having to stop the engine or injure or possibly kill one or both of the women, to return on our tracks until we were out

of sight of the horse, while he was laboriously worked around and returned in the direction from which he came. Several valuable minutes were thus lost, but with the satisfaction of knowing that no injury had been done.

After crossing the Connecticut river at Springfield the run was south instead of north, and it was found much more comfortable. True to the weather reports, snow had begun falling in earnest, and before the high wind it was drifting badly. Being dressed in furs and with no cuticle exposed, we were fairly comfortable, although in taking the hills I was glad to put in the second gear and go up on the governor, with Mr. Law steering, while I beat my hands.

But one incident occurred during the run south. We were trying to maintain our schedule time and seemed to be gaining tremendously, when it was discovered that Mr. Law's watch had stopped. He ascribed it to the cold. My own watch was brought into requisition and the running corrected to meet the schedule. No stop was necessary, as in all probability the storm kept most horse vehicles indoors.

None of the phenomena of carburation, water jacket freezing, or power development half expected to occur were experienced, notwithstanding the fact that in the high wind and the driving snow we must unavoidably have drawn some snow into our carbureter and engine.

We arrived back at the factory at 9:45, five minutes ahead of schedule, in spite of our efforts to run down to it. The cyclometer reading was 54 miles and our total time 3 hours and 25 minutes, or an average of a little better than 15½ miles per hour. Better time would have been easily possible during daylight, but the schedule had to include more stops for frightened horses than had been our

fortune, and the slower running necessary over the icy-coated roads in the dark.

The second crew were found not to be ready on account of a little delay on their own part and our arriving five minutes ahead of time. The crew consisted of Mr. H. W. Alden as driver with F. C. Reineking as passenger. Neither had ever been in the vehicle and neither had ever been over the entire road before. Both, however, were familiar with the running of gasoline vehicles, but of different constructions than this one. Before they took their places the desire measurements were taken and the head lights put out. I had nothing to report as wrong with the machine, so the second crew immediately took possession and started.

The second start was made at 9:55. It was snowing fast, which, however, would probably make the ice coating less slippery, although it had the disadvantage of making the road and the roadside exactly the same color. The wind had mounted to a fair gale from the north and the thermometer remained at zero.

According to the schedule, Mr. Alden should have returned at 1:50. Preparations began making by No. 3 crew about 1:30 and had just about started when to our amazement Mr. Alden appeared. His excuse for being twenty-five minutes ahead of time was that his mate's watch had stopped, and that not having his own in his outside pocket, they had lost all track of the time. The watch problem seemed to be, and was borne out by later experience, to be more difficult than the automobile problem. Number 3 crew were hurried all possible, but the best they could do necessitated the engine running with the carriage standing until 1:50.

The cyclometer reading was 108 miles. The measurements were again taken and the head lights relighted, as the next

return would not be until after darkness had fallen.

Mr. Alden reported everything all right about the vehicle, and No. 3 crew took possession and started at exactly 1:50. The third crew consisted of Mr. M. G. Howarth as driver and Mr. B. B. Holcomb as passenger. Neither had ever driven the machine more than a few feet, although both were familiar with the operation of gasoline automobiles. Neither had ever been over the road before.

Mr. Alden reported an experience similar to my own as far as horses were concerned, but much more severe discomfort, owing to the snow. Upon his arrival back his moustache was found frozen to the fur of his coat, presenting the appearance of a beard of ice. His horse experience nearly caused the abrupt ending of the test. Being not as particular about offending other users of the highway and

having men to deal with rather than women, as was my case, he tried to run past a team and was forced to the very edge of the road. He started slipping down the side of the road on the ice, with which everything was coated, and said he had given up all hope of being able to avoid a general smash-up, when by a kind Providence the tire caught something sharp and stuck just enough to stop the sliding and enable the wheel to get enough traction to slowly work the carriage back on to the road. It was probably a very close call, and, profiting by it, instructions were given to the other drivers to take no chances of spoiling the test by unnecessarily risking smash-ups.

Mr. Alden reported the engine as not having stopped and no peculiarities in functioning of any of the parts, and that another stop in addition to the one described above, also for a horse, was all that were found necessary for the vehicle.

(Concluded in April Number.)

Motor Maniacal

By Russell Whitney Todd

As a citizen who suffers, saddest tribute
I would pay
To the man with jaw motoric who has
automobile praise to say,
For he says it night and morning every
day throughout the year,
And his talker's oscillation makes the
journey dreary here.
He will seize you by the collar, and he'll
back you 'gainst the wall,
While his words concerning autos, like
the raindrops' ceaseless fall.
It is chatter, chatter, chatter,
In a changeless monotone;
Merely patter, patter, patter,
Quite regardless of your moan;
And he leaves you anguish-stricken,
who at first were blithe and gay,
Does the man with jaw motoric, who
has automobile praise to say.

Tell me not perpetual motion is a fan-
tasy, a dream,
Never meant for man's attainment in
the universal scheme;
Tell me not that rest's inertia is a need-
ful state below,
For I've met the jaw motoric, and I
guess I ought to know.
I, like you, have oft been cornered in
some calm, secluded spot,
And his endless dribble, dribble, I have
nevermore forgot.
It is dribble, dribble, dribble,
Mindless words you can't recall;
Merely nibble, nibble, nibble,
And he takes you, bait and all;
And he leaves you—when you make
him—filled with wonder and dismay,
Does the man with jaw motoric who has
automobile praise to say.

Uncle Lemuel's New Vocation

By Horace Seymour Keller

UNCLE LEMUEL was on the job last summer pretty much the whole season; and what's more, he laid away enough of the long green and bright plunks to winter him and Mandy nicely. Best of all, there will be pork left in the barrel in the cellar to start them in the spring, or until the shy crocus pokes its dainty face out to the sunshine again. About that time Lemuel will take up once more his new vocation and proceed to duplicate last season's success—or a little more. Some men would have chanced upon the same vocation the same as he did, and would have gone no further with it. But your Uncle Lemuel was a far seeing man, who knew a good thing at sight without yelling for it to come back and let him look the ground over the second time. The good thing was presented to him as follows:

He was nodding in his old wheezy buggy behind Old Gray, who was picking her way along the narrow road; Lemuel was thinking about a certain pair of shoats and wondering if he could raise the raffle to buy them. He was suddenly disturbed from his reverie when a voice uttered:

"Ah, there, stranger! Please do not run us down."

Lemuel opened his eyes and raised his head with a jerk. Old Gray was resting her grizzled muzzle on the rear of an automobile, and by the side of the machine stood a young man with a vexed look on his face; at his elbow was standing a pretty maiden, who also looked perplexed the while she gave the motor some reproachful glances.

"Busted, b'gosh! Won't the tarnal thing budge?"

"No; it's all in for a while, or until I can get to a repair shop. I'm a

stranger to this road. Can you tell me if there is a repair shop near?" inquired the young fellow.

"That's what I can. I reckon thur hain't no repair feller can beat Silus Poot fixin' up a busted moterbill. Was a right smart smith once an' made bobsleds—"

"Pardon me for interrupting, but how far away is this shop?"

"Only a matter o' two mile—"

"Good heavens! Two miles?" The young man turned to his fair companion and added: "That's a tough go on us." The maiden returned his look of vexation and gave the tire a little slap.

"Stranger, shall I drive on an' send Silus back wuth his kit o' tools?"

"No, sir. I must get the machine there somehow. What will you charge to hitch the thing on behind your buggy?"

"She won't bust up an' spile my buggy an' scare Old Gray all to fits, will she?"

"No; the poor thing is perfectly harmless, I assure you. It would help us out greatly, you know. I will pay you what you think it is worth."

"Well, I allus like to help out—an' am allus ready to dicker. I hain't never tackled one o' them things afore an' don't know much 'bout thur gait. Say, stranger, what do you think it is wuth to drag the merchine two mile?"

"Would two dollars a mile—"

"Geewhittaker? Jest you an' the lady stand aside so I can get in front." Two dollars a mile for hauling the motor! It is finding money right there in the road. Four dollars for the job! And Unclé Lemuel puckered his lips and gave vent to a soft little whistle as he steered the old mare and the wheezy buggy by the quiet motor. With his old rope halter he soon had the ma-

chine fastened to the rear of the buggy; then as he started Old Gray the young man said:

"Beg pardon, but the walk is a little more than the lady might like. I prefer to walk. Would you mind giving up half of your buggy seat to my friend?"

The old man blushed furiously and stammered: "I am a green old jayhawk not to think o' that. Guess you both have a right to call me a hayseed. Do I mind havin' the lady sit by me? Well, I guess not!" The young fellow smiled at the precise and careful manner in which the old chap helped the pretty girl into the old buggy.

Nothing like this had ever favored the old buggy. From the corner of his eye Lemuel took in the curve of lips, the round rosy cheeks, the dainty turn of the neck and the pretty gown. Sitting right there so close to him that the faint perfume of her tresses greets his sense of smell. He must be dreaming surely. He turned away his head, and when he again glanced at the fair creature he met her face all aglow with smiles. He must say something; she will think him a country clown if he remains by her side for two miles dumb and silent.

"I—I hope thet—the spring thet bumps on yer side don't bother you—"

"Not at all; I rather like the sensation."

"Sum don't."

After that conversation became quite fluent between the pair. Lemuel was delighted—so was the other, especially when the old man would raise his chin and shake his funny whiskers. She looked back and waved her hand toward the young man trudging on behind.

Silas Poot soon put the motor in good shape. The young man paid him for his services, rolled to the porch where his companion was waiting with Mandy and Lemuel standing close. The girl shook hands with the old man, and touched

her rosy lips to Mandy's soft cheek, tripped down the porch and sprang into the auto and away they bowled out of sight.

"Mandy, thur is a gal after my heart——"

"She is pretty as a picture, Lemuel. She wasn't above kissin' an' old woman, bless hur!"

Suddenly a fancy struck the old man, and the next moment he was talking with Silas Poot.

"I say, Silus, can't you an' I dicker a leetle?"

"Guess so. I'm allus open fur trade."

"How much did you git for repa'rin' the moterbill?"

"Two dollars; why, Lem?"

"Nuthin', only I reckon you oughter hand me over twenty-five cents on the dollar. Don't you think so, Silus?"

"I guess not. Why should I hand you over a cent? Lemuel, you allus was sharp at dickerin', but here is whur you git the wust, see?"

"I tell you what I do see, Silus. I see myself on the job the rest o' the summer. What is the job? Only travlin' 'bout the roads pickin' up busted moterbills an' haulin' them over to Hen Pivins' shop. Hen's purty good at patchin' up things. Hen an' I can dicker. Lots o' merchines git busted on the road. Lots o' patchin' to be done. Money in the job. Guess I'll take a walk over an' talk the thing up wuth Hen."

"Lemuel, I reckon I know a good thing even if I have to settle fur it. You get right on the job, an' you haul all them busted motors to this shop. You get twenty-five cents on the dollar fur all work done on every one you bring here. Satisfactory?"

"I allus did give you credit fur clear sight an' long range shootin', Silus. The bargain is made."

Before the summer ended Silas Poot

added a shed to his shop, sent to the city for up-to-date repair tools, and was making money. No man on the road had a nose like Uncle Lemuel for picking up broken-down automobiles and rescuing people from distressing situations.

And that is the job he is going to tackle again—as soon as the crocus and violet come along with the throbbing motor.

Advantage of the Governor

The great advantage of the governor is found when changing gear. At the time of gear changing the clutch or its equivalent is disconnected, and consequently the engine is freed from the car—that is to say, it has no driving work to do, and it immediately begins to race at a very high speed, causing a lot of noise and vibration, but the governor automatically prevents this, either by cutting off the supply of gas to the engine or by opening the exhaust valve, but it should be understood it never stops the engine. As soon as the engine speed

slackens the governor ceases to cut off the gas, so that the engine picks up its speed again. When engines have no governor the driver has to throttle them by hand while he is changing gear.

Briefly described, the governor consists of two weights, which are hinged to the engine shaft and held in position by springs. The governor is then adjusted so that when the speed of the engine exceeds a predetermined limit centrifugal force causes the governor balls or weights to move from the center of the engine shaft. They are connected by a series of levers and rods with the throttle, so that as the speed of the engine causes them to fly out they turn off some of the explosive mixture from the engine so that its explosions are weakened. As the speed of the engine falls the governor weights resume their normal position, and the engine gets its full supply of gas. When it is desired to run the engine as fast as possible the governor can be put out of action by the driver through a lever on the dashboard.

The Road to Yesterday

By Minnie Mackenzie

There is a road to yesterday—

A wondrous thoroughfare,
Where wanton breezes idly play
And blossoms scent the air.

It stretches long and far and straight;
It wanders up and down;
It passes many an open gate
And many a little town.

There is a road to yesterday;

The grasses grow beside,
And trees that spread and swing and sway

And shade the pathway wide.
Its flowers are a goodly sight,
And it goes on and on
And leads to many a starry night
And many a cloudless dawn.

There is a road to yesterday,

And we may trace its gleam
In flecking shade or dancing ray
Upon some little stream;
Or we may see it, when, with eyes
Half-closed, we hear a song
That calls up many a glad sunrise
And many a twilight long.

There is a road to yesterday,

And each one knows its start—
The portal to this wondrous way
Is held within the heart;
From there the pleasant courses lead
As far as one can see—
It rests on many a golden deed
And many a memory.

Lubricated Highways

By Prof. James R. Dunn

HERE in California the use of oil on streets and roads is safely past the experimental stage, and its success is attested by the miles of roads and streets in the State that are either oiled or for whose treatment plans are being made. Nearly every municipality in California is engaged in improving its residence streets with oil, and every county is letting contracts for the oiling of country roads.

Oil has been used on the macadam roads of Golden Gate Park in San Francisco with satisfactory results. Only for four or five days after its application was the odor offensive, and no word of complaint has ever since been heard on account of the smell. With one sprinkling of oil a year these roads have sustained an enormous travel without once becoming dusty, though they were among the most popular driveways in the park.

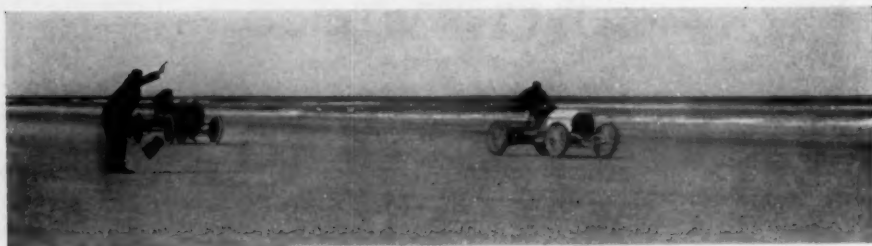
But it is in the making of a road metal by saturating a layer of soil with oil that the great amount of road improvement has gone forward in California during the last few years. With the use of crude oil in which asphaltum is so large a component part, a crust is formed which is almost as good as a bituminous pavement, and this, too, whether the soil be sandy, alluvial or adobe.

The elasticity of a well prepared oiled road is all that can be desired. It yields agreeably under foot and vehicle. It is free from dust in summer and mud in winter, and can at all times be kept as clean as an asphalt pavement. After driving over an oiled road for hours there will be found no trace of dust nor speck of oil on buggy or clothing of driver.

While the odor from a California oiled road may be detected for several days after treatment it is not objectionable. Only the few days immediately following application is the smell of oil at all disagreeable. The people of California find no objection on account of the smell, and the extension of oiled roads is welcomed everywhere. Such roads are no longer an experiment, and no one who has once used them would be willing to dispense with them. Householders and travelers are no longer troubled with dust, the rain water is quickly shed to the gutter, the roads are always clean, and the oil does not pack to the feet of the pedestrians to be thereby tracked into the house, as many supposed it would be.

The cost of treatment of a mile of road for three years, at the present price of oil, will not exceed \$300, of which one-half will be expended the first year. The best results have been obtained where two applications were made the first year, one the second year, and one the third year. After that it is only necessary to keep the road in ordinary repair.

At a recent convention of California's municipal officers, the city engineer of Fresno, where streets and country roads are being oiled extensively, gave an estimate of the cost at that place. The price of oil averaged 75 cents a barrel, 125 barrels being required for the first application, and 50 to 75 for the second, making a total cost of about \$200 a mile. The cost of sprinkling a mile of street with water in Fresno, where the summer is long and dry, had been \$700 annually, so the actual saving for dust laying alone was about \$500 per mile in favor of oiling.



As a Lame Man Saw It

By W. J. Morgan

IT was suggested that a story on the Ormond-Daytona races written by a man "in a hole" would be a good thing. As I was the unfortunate who fell into one on the Ormond Beach, here are a few of my impressions, as seen from the hole, and from a bath chair where on the last day of the races I moved a badly sprained ankle. The editor a-sort-of insinuated that Ormond Beach was the best place he knew for a man to fall into a hole, especially as it was blizzard weather in New York, and I had an accident insurance policy which had cost me a lot and had never paid me anything. Of course, these insinuations hurt my feelings, but the tender care of many friends at Ormond and Daytona fully made up for the editor's lack of faith in me. The races were undoubtedly the greatest ever given, and the number of records which fell testified to this. No race meet ever promoted for automobile speeding purposes has ever before been so prolific in record-breaking. Even so, I am firmly convinced that next winter will see at least five seconds chopped off the 39 seconds for the world's record mile made by W. K. Vanderbilt, Jr.

Some of my predictions about the affair were fulfilled, especially the one where I declared Mr. Vanderbilt would be the bright particular star of the meet, and that he would wipe out many of the existing records. This prediction was

quoted the world over. This I know, since I have heard from people in Berlin, Paris and London congratulating me on the correctness of my estimate in regard to the driving ability of a gentleman whom I believed to be one of the world's greatest drivers. Still, it was an easy thing to predict the success of Mr. Vanderbilt. All I had to do was to look over his racing record abroad and then couple that with the machine he was going to drive, and there you had a perfect mixture for great possibilities. Mr. Vanderbilt is easily to-day the most popular driver in America.

Others at the meet did splendidly, not forgetting Barney Oldfield's really meritorious mile in 43 seconds in the open championship. The day this was done was not perfect by a long ways, as the drivers raced through fog. You heard a roar and the next moment out of the fog-blanket flying figures emerged, and then were as quickly lost to view in more fog. There is no doubt but what Mr. Vanderbilt was handicapped by not being able to get his fourth speed going, so there is no way of telling what would have happened if his machine had been fit to test Oldfield out. It was equally unfortunate that Oldfield's winning of the mile finished his machine, so that he could not compete in other races. But the Oldfield mile in 43 seconds was good work; it was great work, and Mr. Vanderbilt was the first to congratulate him, like the

thorough sportsman he is. I would not be surprised if it was the first and last time this pair will ever race against each other, and I have the best of reasons for thinking this. Oldfield did not increase in popularity by his appearance on the Florida beach, since his talk and conduct could not impress favorably either the Florida East Coast Automobile Association, or the automobilists who had journeyed to Florida to see the tournament. Oldfield needs considerable restraint upon his speech and actions, and if he does not get this quickly, it will be only a short time before his presence will not be sought for at race meets.

A good word must be said for H. L. Bowden and S. B. Stevens, both of whom jumped into popular favor on their first appearance, which must be certainly marked down as sensational, since world's records fell before the pair with ridiculous ease. I believe these two men will be great rivals of W. K. Vanderbilt, Jr., next winter, as each of them has ordered a high powered car. Mr. Bowden is a fine driver and a splendid sportsman to boot. He sits in his car like a centaur and is not troubled with "nerves." I believe when Mr. Bowden gets down out of his elevated position and sits behind a wind shield he will improve his time by several seconds, as he is a big built man and exposes much more surface for wind resistance than is necessary or advisable. This was proved to an extent when his chauffeur drove the Bowden Mercedes a mile in one second better time than its owner, just because he was a thin man and consequently offered less wind resistance. It must be remembered that Mr. Bowden was unheard of as a racing man until he appeared in Florida, and his jumping into world-wide fame in 24 hours proves that in H. L. Bowden, of Waltham, Mass., America has found another great driver.

S. B. Stevens figured as my "un-

known" in our December issue, and I then and there predicted he would be a foeman worthy of the best of them. Mr. Stevens is a modest young man and his driving is as great as his modesty. When he came into the office one day and said to me that he wanted to enter the races in which Mr. Vanderbilt appeared, I sized him up as a man either burdened with too much ambition, or else one who was lacking information as to what he proposed going up against. On inquiry, I learned that he was going to drive a Mercedes, a 1903 Gordon Bennett cup vehicle, whereupon I felt very much like apologizing to him for my doubts. A large number of people made guesses as to the identity of my "unknown," and the newspaper men finally had him hailing from as far west as Denver, whereas he was and is one of the noble Romans, and now possibly "the greatest Roman of them all." Mr. Stevens hails from Rome, New York, where he can now have the Mayoralty or any other old office he wants, so popular has his victories made him, and so proud of him are the New York Romans. Like Mr. Bowden, Mr. Stevens was entirely unknown racingly before the Ormond-Daytona meet, where like a flash of lightning from a cloudless sky his fame by electric agency went to the four quarters of the globe, and another great American driver was born.

In the open races it was a case of one, two, three between the drivers of the Mercedes, and it was a fairly good "elimination test," so far as American racing machines were concerned. In fact, it seems to me no other test is needed. It will be the same thing in the Gordon Bennett race, and we might as well right now decide to save ourselves much trouble, much expense, and much humiliation by keeping the American racing machines at home. It is too bad that these three drivers are not driving Ameri-

can racing machines, but the bald fact remains that we have not got American racers fit for them to drive, nor will we have before 1906. In that year we may have machines for racing purposes just as good as the Mercedes.

Let me here pay tribute also to the driving of Walter Christie, who sent his self-built touring car at such speed as to demonstrate beyond a doubt that Mr. Christie is in the very van of American automobile construction.

A word of praise is justly due Joseph Tracy, a modest, efficient young driver, who sent the Peerless racer about 10 seconds faster in the mile than it has ever been driven before. Arthur Moulton, the young Fifth avenue engine designing expert, who worked with Mr. Tracy, must also be credited with part of the Peerless' success.

W. Gould Brokaw was immensely pleased with the fine work of his Renault, driven by M. Bernin, and this machine was easily the fourth fastest performer on the beach. Mr. Brokaw was always helpful and proved his sportsmanship more than once during the meet. Once when an admirer of Oldfield offered to bet \$1,000 that the latter would defeat Mr. Vanderbilt, Mr. Brokaw insisted that he should be allowed to take half the bet, and I believe it was a good thing for the Oldfield backer that the race did not come off.

Louis S. Ross made a decided impression when he drove a semi-racing steamer and beat the world's record. Mr. Ross will next winter have a much faster machine in the way of a steamer and may have a gasoline racer also.

J. Insley Blair had fair success with his Panhard, which was driven by the unfortunate Ehrlich. B. M. Shanley, Jr., satisfied himself in regard to the speed of Decauville, and took his defeat by Mr. Brokaw in a thoroughly sportsmanlike way.

F. A. La Roche was unfortunate in not having his racing Darracq in better condition for the hard work it was called upon to perform, but Mr. La Roche promises to get revenge with a larger powered machine later on, and those who know him best are surest that he will redeem his promise.

James L. Breese sent his Mercedes some fast miles, but as it was a road machine, he was satisfied that he could not compete against the racing machines of that type.

Captain Hugh L. Willoughby succeeded in his determined fight to bring his machine from St. Augustine to Ormond by beach and road, and notwithstanding all the abuse his little Autocar received in this trip it averaged over 40 miles an hour, 41 to be exact, on the beach, and thereby won a prize for its plucky owner.

There were some hitches the first day of the tournament, largely through misunderstandings between the officials and the inexperience of some of the gentlemen who were on committees, but everything soon straightened itself through the kindly efforts of the visiting officials. It must be remembered that a fifteen-mile course cannot be managed as a mile one can, particularly if the latter course is a circular one. It is not easy to communicate promptly with a man, say 15 miles away, not even by an automobile, especially if the automobile is not in perfect working order.

Finally it can be said that all future meets on the Ormond-Daytona beach will be arranged for and conducted by the Florida East Coast Automobile Association, and by no one else. The racing on the beach is a local enterprise, and as the association has done so well and has given automobiling such a splendid advertisement, it is unfair to suggest that any other agency should seek now to control the meet.

From an Engineer's Point of View

By Angus Sinclair

FOR seventy years the locomotive engine has held the reputation of being the fastest man-made article to move through space, but it has lately descended to a second place. The locomotive had not been introduced on general railways two years when it attained a velocity of sixty miles an hour or, as the figures appealed to the popular mind, it ran at the rate of a mile a minute. That was remarkably fast compared to the speed of any other member of the transportation family, but subsequent improvements on the engine did not increase its speed-making capacity. When people have talked about fast speed being maintained on certain railways, they always meant something under 60 miles an hour, and no regular trains, with one exception, have ever averaged the velocity of 88 feet per second, which the engineering world seemed to consider the limit of speed for a motor carrying its own source of power.

Now the humble-looking automobile has suddenly jumped into prominence as a speed maker and carried away the laurels from the locomotive. In the course of the races held by the F. E. C. A. A. on the Ormond-Daytona beach W. K. Vanderbilt, Jr., drove an automobile one mile in 39 seconds, a velocity of 92.3 miles per hour; over 135 feet per second.

This was no isolated spurt where the partiality of timers would help out a few seconds, for the best-developed electric apparatus was employed in recording the speed, and the single mile record was probably exceeded in a ten-mile race which Mr. Vanderbilt accomplished in 6 minutes 50 seconds, an average of 41 seconds for each mile. During this race his friends say he made one mile in 35 seconds, equivalent to nearly 103 miles

an hour, or close on 151 feet per second. Think of passing three 50-foot blocks every second!

The beach where the racing was done is wonderfully well adapted to racing purposes. The ocean, of course, covers it twice every twenty-four hours and leaves it about as hard as a macadamized road, with the added advantage that it is wet enough and cold enough to keep the pneumatic tires of fast running vehicles from becoming hot. One of the difficulties which people running fast racing motor cars have to contend with is the tendency of the tires to heat up and explode. I have frequently heard the question asked: Why does a pneumatic tire become hot under high speed while the steel tires of a locomotive hammering on steel rails remain cool? The explanation is that the compression shocks given to the air inside the tire are converted into heat just as a pump used to compress air becomes hot, or striking a piece of iron with a hammer produces heat. The heat inside the tire having no means of adjustment to the temperature of the surrounding atmosphere, accumulates until it may reach the dangerous intensity that causes bursting of the tire. The tires of a locomotive, of course, are constantly passing through the air, which carries away the heat of compact as fast as it is generated. The wet beach keeps the tires so cool that the heat of concussion is dissipated.

There is an extraordinary peculiarity about the beach where this racing was done. It is composed of nearly pure silicon with a slight mixture of minute shells formed of lime. The mass becomes intensely hard as the water leaves it, but when it becomes dry the sand drifts like snow and is not unlike snow in appearance. There is a story told of



two men named Wood, who had reached an age considerably over the four-score years, and both were hale, hearty men. An investigator into longevity found that one of the Woods had led an unusually abstemious life, while the other kept himself constantly soaked in liquor. The investigator came to the conclusion that to preserve wood it must be kept either very dry or very wet.

The Florida beach has a similar peculiarity. It is very soft when very wet, or when very dry. It solidifies immediately after the water goes off, but if an unlucky motorist ventures a few feet into the tide he is likely to remain there until he is pulled out, for the action of the driving wheels churns the sand like mortar. As there is practically no twilight in these parts, several of the automobilists were benighted on the beach, and some of them having straggled into the water, by compulsion left their cars there until morning. The tide rises and falls only about two feet, so that the strip of nearly level beach is only about 150 feet wide at low water. The period through which racing is practicable each day does not exceed four hours. This makes a good safe course when it is at its widest, but when it is narrowed up the driver is between a charybdis of dry sand on the one side, which has no more bearing strength than a bank of newly fallen snow and the tide-washed Scylla, where, to quote

ancient legions, "His vessel may be engulfed in the salt waters of the stern ocean." This is drawing an extreme picture, for a detour from the straight and narrow way merely leads the motorist into a medium which will hold his vehicle fast. The tide-washed beach is an ideal speedway in many respects.

I have picked out the Vanderbilt performance from several others that would have attracted wide-world attention had they not been eclipsed by the achievements of the champion. This is done because I wish to make comparisons between the work done by Mr. Vanderbilt's automobile and that of a first-class modern locomotive.

In the February number of *Railway and Locomotive Engineering* there is an illustration and description of one of the latest passenger train locomotives belonging to the Pennsylvania Railroad which may be accepted as the highest development of that species of engine. I calculated that the engine develops some 2,000 horse power when running at 60 miles an hour, and is capable of hauling 400 tons at that speed. The weight is 183,130 pounds for the engine and 90,000 pounds for the tender, a total of, say, 237,000 pounds, about 682 pounds for every ton of train hauled. If that engine's speed was pushed to 90 miles an hour, I calculate that the load would have to be cut in two, and that 1,360 pounds of engine would be needed for every ton moved, and one ton represents about half a passenger. The Vanderbilt car weighs about 2,500 pounds and carries two passengers, so it is nearly four times as efficient as a locomotive when considered merely as a prime motor.

The most extraordinary feature of the automobile considered from an engineer-

ing standpoint is the immense concentration of power in little weight and space.

There were great feats of skill displayed in some of the performances. For convenience in keeping the movements in short compass, the course was divided into sections of one, five and ten miles, requiring the racers to turn four times during the fifty-mile race. In his second turn at the post where I was stationed, Mr. Vanderbilt went round in a style that was scarcely credible. Running about 40 miles an hour he turned on a radius of 150 feet and came within 4 feet 9 inches of the post. One of the racers attempted to turn too sharp and his car was overturned, but the driver was thrown clear and escaped with a few bruises.

Speculations as to where a certain speed would carry a car or train in a given time are not very practical or edifying, but they are amusing. If Vanderbilt's velocity could be kept up all

the way from New York to Chicago, the run between these cities could be made in 9 hours and 52 minutes. At the same speed the globe could be traveled round in 11 days and 6 hours.

Following up the idea of speed possibilities, when the highways are perfected, Mr. Vanderbilt or one of his racing successors might start from New York after an early breakfast for a brief tour. If he started at 8 A. M. he would reach Pittsburg about 1 P. M. After an hour spent taking luncheon and a brief rest he would start about 2 P. M. and reach Chicago about 7 P. M., in time for dinner and a visit to the theater.

And so it may come to be that all the quarters of the globe will be brought into close contact by means of vehicles under the control of any owner. The speeds attained in these races are most eloquent in what they promise that the future may bring forth.



Cause and Cure of Muffler Explosions

Explosions in the muffler are warranted to attract attention from the onlookers, though it can not be said that the attention so gained is ever favorable, either to the automobile or its owner. There is no need of posing as a gasoline Gatling gun unless you have the bad taste to want to do so, otherwise the cause and the cure of the explosions are both easily understood. Muffler explosions are almost invariably caused by the mixture being too weak. When this happens the charge is not exploded in the cylinder, but passes out through the exhaust valve into the muffler, where it is ignited by the heat of the exhaust

pipe or box. When traveling fast, the mixture lever is adjusted to admit plenty of air to the carbureter; but when the speed is suddenly checked, as it naturally would be when approaching a restive horse, for example, the mixture is upset because the piston speed is not sufficiently great to suck in a sufficiency of spray to mingle with the air; thus it happens that the very act of suddenly checking the car in order to pass a restive horse slowly so often has the effect of provoking explosions. The remedy is always to remember to push the mixture lever forward when suddenly checking speed.

Making a Show of the Motor Boat

By The Observer

TO ask a man at the end of a seven weeks' siege of zero weather to go to a department store, fight his way to the elevator through a frenzied army of female bargain hunters and then be hoisted past nine floors filled with a varied assortment of underwear, millinery, groceries, dry and wet goods until the roof was reached, to meet there a polite request to pay twenty-five cents to view some motor boats borders close upon the absurd. That many did all this proves more than anything else how universal and enthusiastic is the public's interest in the power boat.

All things must have a beginning, even motor boat shows. Thus, the recent affair at Macy's must be regarded purely as a beginning, but neither the pastime nor the trade will ever be benefited or placed in its proper light before the public so long as either permits itself to be used as an adjunct to the bargain counter or as a side partner to a ten-cent peep show of an alleged flying machine with a megaphonic barker who should have found a more appreciative demand for his talents on Coney Island's Bowery

than on New York's Broadway. Publicity and advertising are indeed both sadly needed by the motor boat. In fact those who have labored longest and most intelligently in producing craft which have won from the public admiration and support are in danger of

being robbed of their just deserts, now the public is beginning to be won over to the pleasures of power boating solely because the originators have not, do not and apparently will not go out and offer their boats and their designs to those who, however willing they may be to buy, have never heard of nine-tenths of those willing and able to sell them, simply because the nine-tenths have never been heard of by their would-be patrons. While the originators and the real boat builders and designers are thus sleeping, the auto-



Isham Co.



Western Launch Co.



Y. G. E. & Launch Co.



Charles F. Herreshoff

mobile people, with fortunes made in less than five years solely through their aggressive, persistent and extensive advertising, have jumped into the motor boat game and through telling the public know they are prepared to supply speed or cruising boats are taking the public's orders and replacing them with

the boat people. In other words, purely through advertising the automobile people are taking the cream of the newly aroused interest in power boats, while the boat people, who should share it, are content to do all the work and accept the skim milk which is left after the shrewd automobile people have taken off the cream.

So while publicity purchased at the expense of an alliance with the bargain counter and a flying machine is better than no publicity at all, though the good such publicity does is too dearly paid for in the entangling alliances used to secure it. A trade, even more than an individual, is known by the company it keeps, and when the motor boat has to mate with a yard of tape, a megaphone and a ten-cent flying machine model, it is certainly in company which will not give the public any exalted opinion of either its ability or its stability.

The motor boat industry is an infant which has been stunted by the old fogysm of its progenitors. That the infant has lived at all speaks more for its inherent strength than for any assistance it has received from those in control of its destinies. The day has come—in fact it has been here for entirely too long a period—when those who have money invested in the business of building motor boats must come up abreast of the times or else be prepared to see themselves crowded out of their own business by people who know how to take advantage of public favor.

As the motor boat industry exists today it is nothing but a disorganized aggregation without either a past or a future. To acquire for itself the dignity and the power it is worthy of, the builders of powercraft must organize. They must present a united front to a common enemy; they must develop the public's knowledge, favor and support of the power boat, and they must con-

trol their own futures without the high-priced and not always desirable assistance of outsiders. In short, it is the old story all over of "united we stand; divided we fall."

Will the builders and designers do this or will they continue to commit suicide by the slow but nevertheless sure means of commercial atrophy?

So much for what might be and what should be, now for the show itself. No friend of the motor boat could feel proud of what he saw when he paid his twenty-five cents to view the top story exhibition. The collection of boats and equipment was more representative in what it lacked than in what it possessed. In fact, were it not for Isham, Lozier, Truscott and Palmer the affair would have been a total failure. As it was, these concerns bravely upheld the good repute of the trade, and from all appearances did not go unrewarded by the public in consequence. Other than the exhibits of these concerns the general impression left by the affair was only one of disappointment. Freaks, not to say fakes, had been allowed to intrude, with the very natural result that the whole tone of the show had sunk to their level. In many ways not easy to define the entire affair had an air of being run purely for the money which could be made out of it, and not for either the instruction of the public or the benefit of the power boat.

Boat exhibits were very naturally, from the location of the show room, confined entirely to open launches, which was another unfortunate feature. The public, which has yet to take up boats, divides all pleasure crafts into two classes: open craft are "boats," cabined ones "yachts." There is an attraction about the latter which makes the average small boat buyer unable to resist parting with his money. Show him a "boat," let it be ever so fine, so

speedy, and so perfect, and he balks at the price thereof; offer him the same craft with a cabin the size of a cigar box and other equipments in keeping, and he will gladly pay the price asked for it because to him that is a "yacht," and he through the mere fact of owning it becomes a "yachtsman."

It may be said that this class of purchasers is not to be catered for since it does not represent the intelligent buyer. Perhaps not, but it does represent the class which is for the moment most anxious to buy small power launches, and most capable of paying for them, hence it is the one which should have its ideas of what it wants in a boat catered to. Lacking anything of this kind the Macy exhibit in the eyes of such of the public as visited it was merely a "boat" show, hence lacking the tone which it might have acquired had it been rated as a "yacht"

exhibit through the presence of cabined launches. Had cabined craft been exhibited equipped with all the appurtenances needed for cruising they would have appealed to the fair sex, whose influence in making any exhibit go is paramount, and to please whom more boats are bought than for any other cause.

Aside from the speedy, serviceable-looking Isham boats, and the sturdy Lozier exhibits, the average visitor came away from the show with only this and a recollection of the Truscott and Palmer craft as about all he got for his visit, unless it was the annoyance of being megaphoned to death by the barker for the ten-cent flying machine.

Many of the exhibits showed unfortunate tendencies toward ginger breadery, builders apparently thinking the public was more anxious to pay for useless and cheap ornamentation than for real merit and the beauty begotten strength and proper designing. Cheap scroll work, tawdry name plates, careless joiner work and poor varnishing and painting were not as absent as they might have been. The tendency to exhibit hulls unequipped with motors, propellers, etc., was unfortunate since the public is not sufficient-



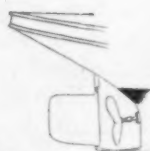
Palmer Bros.



Truscott Boat Mfg. Co.



Lozier Motor Co.



Rockaway Motor Co.

ly educated as yet to appreciate this disassociation of the boat from its driving power, and the boat builder, for his own, no less than the public's sake, should be the last one to act as a teacher.

The AUTOMOBILE MAGAZINE has for almost two years been endeavoring to awaken designers and builders of power craft to the field for a great and pros-

perous business which the vogue of the automobile has opened up. The boat people themselves have seemed contented to let the work of education proceed without any sort of help except in the case of a few who, like Mr. Nock, have done what they could to help the good work along.

What has been written above concerning the trade and the exhibition is not born of any other than a sincere desire to see the motor boat come into its own, as come it will, no matter what

is or is not done. To hasten the arrival of this much to be desired day, however, is what the aim of the magazine has been and will be. To do this it is necessary for it not only to point out errors, but to suggest their avoidance or their remedy, and it is this which has prompted all of the interest the AUTOMOBILE MAGAZINE has taken in the motor boat, which it is fully cognizant is to become as popular on the water as its younger, but more energetic brother, the automobile has become on the land.

The Yachtsman's Lay

By M. H. M.

I am a happy cork;
I dance and prank and play
O'er rock and cave
Upon the wave
Throughout the fleeting day.

I'm tossed into the air,
And yet I'm tossed in vain
From here to there
And everywhere,
For I bob back again.

To let me bound and romp
And skip amid the spray;
In calm and storm
Let me perform
Forever and a day.

That he who sees may sing
"My wealth right out I'd fork
Could I but be
From care as free
As yonder happy cork."



WHEN SAILORS REEF AND LAUNCHMEN LAUGH



(Began in December Issue)

"THAT confounded race is called for nine o'clock, and we've got to get clear around the island in that time."

It was then that I first learned of the capabilities of the Esmeralda for speed. We made a circuitous course of about twenty miles in order to avoid any other craft and yet be able to run awash. We passed in sight of Hotel Victory, but, as we learned afterward, were not observed, as nothing but the pilot house was out of water. When we came in sight of Gibraltar we still had fifteen minutes before the starting gun, and by running carefully, fully submerged, we stopped the engine under the bow of the referee's boat with just thirty seconds to spare. The little mirror telescope was shoved cautiously above the water, and at a pre-arranged signal from President Le Blonde, who was in the secret, we made our upward plunge, as already related. How Tim worried the others along and fooled the people, keeping in the rear until the outward mark was passed, and then suddenly putting on full speed, you have already heard.

CHAPTER IV

As the Esmeralda plunged beneath the water at the finish of the race Tim took her close to the bottom of the bay, and steering slowly and carefully, gradually worked his way into the open water about half way to Middle Bass Island.

Coming close to the surface he ran up his telescopic tube, took his bearings, and then steering by compass went directly west until we were about eight

miles from the bay. We approached the surface cautiously to make sure that we were not observed, and then running awash with the pilot house just out of water, turned about, rounded Put-in-Bay Island to the west and made for the cave we had discovered that morning. When but a little way from our destination we discovered we were followed, apparently by one of the fast racers with which we had competed that morning. Tim immediately put on all speed, and those on the other boat realizing that they were discovered, put about and went back, probably appreciating the fact that it would be useless to follow. Having shaken off our enemy, we turned about and soon found the opening to the cave, which we entered cautiously so as not to get fast as we had done that morning.

We rose to the surface carefully after entering, and opening a port hole thrust out a miner's safety lamp in order to test the air for gas. Fortunately it turned out to be pure, and finding a ledge at the further end we got out and stretched our legs, which we were glad to do after our sixteen-hour sojourn in the cramped quarters of the boat.

As we turned the search light upon the walls of the cave, we found that it was studded with a number of quartz crystals which glistened like diamonds until we almost forgot our lunch in our pleasure at the beautiful sight. Naturally the air of the cave was damp and chilly, so we pulled on our sweaters before sitting down to an improvised lunch table consisting of a flat rock about two feet above

the floor of the ledge. Lunch and cigars disposed of, we began an exploration of the cave, which was some twenty by fifty feet in extent, and from which two small galleries led to other rooms nearly as large and quite as beautiful. We amused ourselves making a map of the cave and hunting for possible secret passages by sounding the walls with a hammer. However, we discovered nothing, and after eating another light lunch at seven o'clock we were prepared to return to Cleveland for further supplies and also to get the newspapers that we might see an account of the race. Arrived at our "Garage," as Tim facetiously called our cave near Cleveland, we found Pat there with evening papers and several letters. Among the mail was a letter from President LeBlonde, of the Central States Boat Association, in which he informed us of a protest made by the owner of the "Dagger," claiming our time allowance was wrong, and that we should have been given a higher rating, and asked to have our engines remeasured. There was also a suggestion that we were entered out of our class, as we really belonged to either fifty-foot Class B or forty-foot Class C, our length being entered as forty feet, and the race being for boats in first class A. Evidently this latter complaint was made merely as a matter of form, as there was nothing in the rules which prevented a boat entering in a class higher than in which she properly belonged.

President LeBlonde very kindly called our attention to the fact that the other boats in the race really belonged to first-class H, as they were all open boats, some mistake having been made and the first and second divisions confused. That is to say, classes A to G include cabin boats and boats with standing awnings, while classes H to N include hunting launches and open boats, and that a strict interpretation of the rule would evidently

place the Esmerelda in the same class as cabin boats. However, he begged as a mere matter of form to be allowed to measure the engines once more, and said he would be down that evening to see us. Tim considered Mr. LeBlonde's visit so much as a matter of course that I could not but express my astonishment.

"That's all right, Ned," he answered. "LeBlonde is a stockholder in our company and knows all about the Esmerelda. I'm not at all afraid of the outcome of the measurement, although by the rules of the American Power Boat Association the engine should probably be rated at 71 H.P. at 1,000 r.p.m., which, as a matter of fact it will not give on gasoline the actual H.P. being somewhere between 65 and 68. However, my rating must be 940 r.p.m. in order to secure fair treatment, as you know the owner must make affidavit as to his speed, but I'll defy any one to make this engine run at over 950 r.p.m. without I show him how. It is a 4½-inch bore by 5-inch stroke, and, as I said before, will give 65 H.P. at 1,000 and 100 H.P. at 1,500 r.p.m. As a matter of fact, I have run the engine as high as 1,800 r.p.m., but in a race 1,500 is what I usually run it. Taking the actual load water line of the boat at 41 feet, which is what she measures when in racing trim, and allowing the engine to be 65 H.P., the rating would be 39 and a fraction. At 1,500 r.p.m. the rating would be about 42½, making a difference in my time allowance of about half a minute in a mile. I shall tell Mr. LeBlonde that he may raise the speed to 1,200 if he likes, as I can stand the difference in time allowance and still beat the other fellows hands down."

President LeBlonde arrived about midnight and brought with him Mr. Starin, the referee, who, while holding stock in the company, had not yet been introduced to the Esmerelda. Mr. LeBlonde was sufficiently versed in ma-

chinery to be able to make the measurement, and Tim soon had one of the cylinder heads off. Measurements were made three times merely for the purpose of assuring the protestant that they had been carefully done. Based on the Power Boat Association rule for horse-power, the rating was changed to 85. So with this time allowance we entered the race two days later, which fortunately for us had been postponed on account of an accident to one of the contestants. As it will be remembered, this race was a durability contest for fifty miles, but, unlike the automobile endurance runs, no limit was to be placed upon the speed. Tim's new rating was now 41 and gave him 19 seconds less time allowance than with the engine rated at 65 H.P., which would make a difference of nearly 16 minutes on the fifty-mile run. However, from the way he had run away from the boats on the first race, we had very little misgiving about the outcome, particularly as the ratings of the other boats were very close to our own.

* * * * *

Again the waters of Put-in-Bay were crowded with craft of all sorts, while the shore was black with people. The large racers were as before lined up off the bow of the referee's boat, all except the *Esmerelda*. A sigh of relief went up from their owners and operators when they saw the new rating of the *Esmerelda*. "Now," they said to themselves, "we shall have some chance of beating her, as she must be a wonder if she can stand that handicap."

Just as in the race two days previously, the *Esmerelda* was on time for the warning gun, rising from the depths with five seconds to spare. But this time she stayed on top of the water, and the operator seemed nothing loath about exhibiting her exterior to the admiring crowd. In one particular she was changed. The hull, which in the former

race had been polished like a mirror, was now a shining black, due to a coat of graphite. As the boat appeared while lying in wait for the starting signal, the upper third only of its hull projected above the water line.

The old rule calling for a flying start was suspended for this meet at the request of the contestants. It was averred by them that much of the skill in handling an engine consisted in starting it promptly, and they desired to make the races a test of skill in every way. The course for the race was a triangular one, with the start in the direction of Detroit, thence eastward by the group known as the "Hen and Chickens," rounding North Bass Island and Ballast Island, and entering Put-in-Bay from the East.

As the starting interval grew to a close, the referee waved his hand as a final warning, and the competing boats were brought into line. At the crack of the gun, such was the skill of the operators, the boats moved off practically as a unit. For the first few seconds the *Falchion* took the lead, followed closely by the *Dagger* almost abreast of the *Esmerelda*. A new boat, the "*Tornado*," followed the three foremost ones closely, and seemingly almost without effort drew up to and passed the *Falchion*. Just then a thousand throats took up the cry: "*Esmerelda! Esmerelda! Catch him, Esmerelda!*"

For a moment the little submarine appeared to fall behind, as the *Dagger* left her and ran abreast of the *Falchion*, while the *Tornado* was two lengths in the lead. A groan of disappointment went up from the onlookers, but still she lagged.

On board Tim and I were busy with the gasifier, as the belt was slipping, and we feared we could not accelerate the speed. The belt was fitted with a tightener, but I had to hold the belt down with a stick, using both hands, and Tim could not leave the wheel to help me.

Suddenly I remembered that my little boy had a trick of putting trinkets in my pockets on the sly. "Could he have put in something that would help me?" I felt of the contents of my coat pocket, and, as luck would have it, discovered a spool. Slipping a pencil through the spool, I used it as an idler pulley which I could hold on the belt with one hand. Then with the other hand I screwed up the tightener and turned on a powerful mixture of kerosene, acetylene and picric acid. The engine, which had been running at scarcely 1,100 revolutions, now speeded up to 1,650, and in less than a mile we were abreast of the Tornado and had left the Falchion and the Dagger far behind. As I stepped into the pilot house we were just overtaking the Tornado and were running, as nearly as we could judge, at 32 miles per hour, or about 28 knots. I took up a copy of the program of the day, but could not find the rating of the Tornado, as she had not been officially measured when the copy was sent to the printer. Therefore there was nothing for us to do but to make all speed possible. Fortunately there was sufficient of the speeding mixture for more than a two hours' run, and we decided to make the best of it.

We had made about ten miles of the first leg and had distanced the Tornado by as much as five lengths, when I noticed the engine was slowing slightly, and Tim's face took on an anxious look.

"See what's the matter, Ned," he asked me. And I immediately repaired to the engine room. A hasty examination showed a hot thrust bearing, and I shouted to Tim. I noted the movement of a lever, and soon a tiny stream of water was playing upon the bearing and the speed of the engine at once increased. Tim shouted to me that I had better stay by the engine and watch things, and I remained in the engine room for the rest

of the race, noting carefully the slightest sign of falling off in speed.

In the tool box I found a tachometer, which had evidently been employed for testing the engine on the trial runs. Fortunately the requisite pulley was still upon the propeller shaft, and before the first leg of twenty miles was completed I had it connected. Jealously I watched for any deviation in the engine speed, and at the slightest sign of its falling below 1,600 revolutions per minute I sought at once for the cause. I fed grease, oil and graphite to the main bearings, and watched the cylinder lubricator so that it would not overfeed and foul the spark plugs. By careful management I preserved the speed for the third ten miles at between 1,700 and 1,720, and even got it for a mile or more as high as 1,750, which should have given us a speed in the water of over thirty knots. But a shout from Tim advised me that the front floor plates were buckling inward under the strain, and I was compelled to retard the spark slightly in order to slow the engine. Not a moment did the engine speed drop below 1,600 until we were within five miles of the finish, and then we ran under the bow of the referee's boat with the engine going over 1,500.

The spectators shouted themselves hoarse, but it was necessary to await the arrival of the other boats to see if we had not lost on time allowance. It took us nearly a half-mile run to slow down without straining the boat, and when we returned to the committee boat, the Tornado was still to be heard from. Our time for the course of fifty statute miles was 1h. 38m. 30s., or at an average rate for the course of over 30 miles per hour.

On comparing ratings and the corresponding time allowances, the boats with the lowest rating would have 23 minutes' handicap. The Tornado had the best of us by six minutes and thirty seconds with

our new rating, while the Dagger and the Falchion had each about two seconds less than ten minutes. As it proved, the Tornado was sixteen minutes behind, while the remaining boats were losers by even larger margins.

A signal was hoisted showing that No. 11—the Esmerelda—had won. The shout that went up from the crowd upon water and shore showed that the verdict was a popular one. But Tim appeared dissatisfied.

"Mr. Starin," he said to the referee, "I wish to enter a protest against the rating of my boat. While I won this race, it was with but twenty seconds to spare on time allowance, as the horse power is rightly 100 instead of 85, as rated. I invite a challenge from the Tornado for a race from here to Cleveland."

Mr. Starin held out his hand. "You're a true sportsman, Timberline, and next season we will do our best to arrange such a race for you."

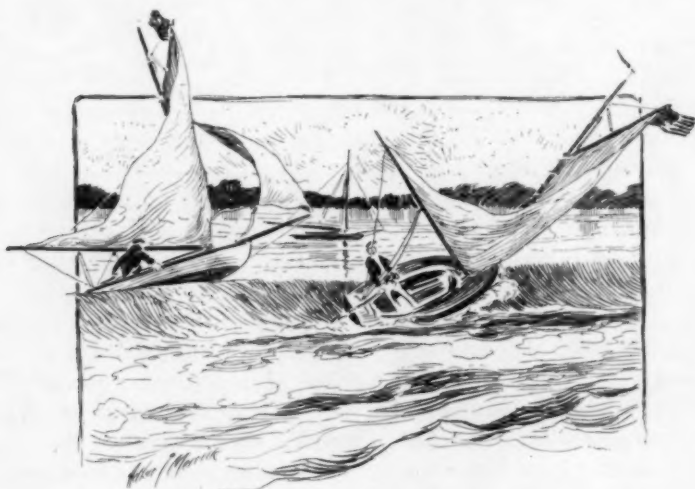
The Great Unsatisfied

The men who are not satisfied
Are they who set the pace—
The men who do not meet defeat
With calm, contented face;
The men who labor on and on,
With minds and fingers skilled—
They are the great unsatisfied
Who plan, and fight, and build.

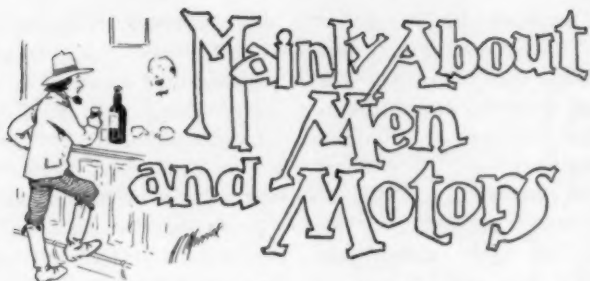
The men who are not satisfied—
They are the ones who lead;
They force motoring ahead,
By strident word and deed;

They bring us out of bygone ways;
They guide us through the dark,
To where some man, unsatisfied,
Has set a shining mark.

The men who are not satisfied—
They gird the world with wires;
They belt the land with rails of steel,
And pierce the air with spires;
They loose the leash of sweet content
With which mankind is tied.
Motoring'll ne'er repay the debt it
owes
The men unsatisfied.



WHEN THE SPEED LAUNCH PASSED



THERE were some funny things happened at Daytona during the tournament which tended to add to the gaiety of the occasion. The Florida "cracker" is nothing like so dense as some people would very naturally take him to be when you observe him sunning himself on a street corner.

After you have run up against the Honorable "Bill" Fagin, guardian of Mr. John Anderson's orange grove, and have tried to trip him up on a joke you will quickly find that you are up against quite an eminent jokist yourself. Of course there are always people in this world who do not credit other people in it with as much smartness as they possess, and it is this class that Mr. Fagin especially delights to trip up. The orange grove superintendent has a happy faculty of being deaf when tiresome people bore him with questions, and he delights to listen to the alleged jokes that they get off at his expense. Fagin is a picturesque Floridian and is the kindest of men imaginable, but like all human beings, he is provided with a limit, which soon appears when people of grass-like freshness tread on his corns.

A Florida cracker drove 25 miles to see the automobile races, and of course, taking in consideration the Florida roads, it took him a day to reach the scene of the races. He arrived at the Clarendon Inn, and his first inquiry was when

would Vanderbilt race? He was told that the great driver was due at the head of the procession in about five minutes, whereupon the cracker decided to take a refresher at the Clarendon bar. (I do not know whether I am violating any confidence by speaking of the aforesaid bar, as I am not sure whether Sea Breeze is prohibition or not, but many New Yorkers know that the goods are all right, so this must be regarded as a testimonial for Manager Knapp.) While the cracker was sampling the case goods, Mr. Vanderbilt sped by, going at about 90 miles an hour.



When information was given the refreshed one of this as he came out of the bar, he said: "Well, I'll be gol darned; here I have risked a fifty-mile drive and have missed Vanderbilt." Climbing back into his buggy, he sorrowfully turned his horse toward the jungles, as the event he had not seen was the last race Mr. Vanderbilt appeared in.

An innocent looking cracker made a rush at Shryer, the New York Official Program man, who was busy raking in the quarters. Handing Shryer what appeared to be a folded up one dollar bill with the denomination plainly in view, he yelled, "Give me a program, quick!" This was done and he received seventy-five cents in change. When Shryer had time he straightened out his money, and found out that the cracker

had given him the half of a one dollar bill, whereupon he executed a very fine war dance on the beach. I suppose the slick cracker had gone elsewhere to dispose of the other half of the bill in a similar fashion, thus literally making one dollar do the duty of two. "Well," said Shryer, "I have been up against all sorts of games, but to be done by a Florida cracker is too painful, and if this is not a case of inflating the currency, I want to know what it is." Shryer did not tell the story on himself, but a sympathetic bystander told the writer about it, and Mr. Shryer acknowledges that he received 50 cents from Washington for his half of the cracker's one dollar bill.

Another amusing thing happened at Daytona, which caused the town to laugh, or at least that portion of the town which could appreciate a joke. It seems a young Daytona business man who wanted to be up to date, advertised in the New York Herald for a stenographer, and I am told by one who read the advertisement that the ad called for a "good looking, well dressed, expert lady stenographer." The successful applicant arrived in Daytona in due time and was all that the ad called for. Within twenty-four hours of her arrival it was noticed that many young men who had previously neglected their attire appeared on the main street and passed the office where the young woman was on view through the office window, dressed in raiment that would have pleased Solomon. Husbands that had formerly worn sweaters blossomed out in new check shirts adorned with blue and red neckties. In short the male portion of the town was daffy over the imported stenographer. Wives came to look with suspicion on their husbands, when they returned home from their morning promenade fresh out of the hands of the

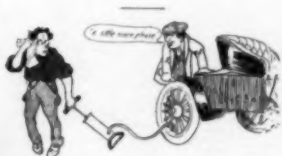
Narragansett Pier barber, who had curled their mustaches in what he declared was the latest Newport style.

Everything went well until the tournament time arrived. One of the visitors to that asked the young woman to take a ride in his automobile, and as soon as the choo choo got out of sight of Daytona town the fair typewriter shocked the driver by asking him if he had a cigarette. A few nights later another automobilist invited the fair one to take a drive, and as this young man is wintering down there and knows the roads he does not retire at ten o'clock. About midnight a crash was heard, and two forms were seen flying out of an automobile as it collided with a tree. The driver acknowledged that he was not sure of his steering, since he had, previously to the crash, found a place where they sold ginger ale and other things. The employer of the young woman paid her a month's salary in advance and gave her a ticket back to New York in order to escape the testimonials that he knew he would receive if he retained her services. The married women of Daytona breathe easier ever since they saw her get aboard the train.



While confined to my room at Ormond I was waited upon by a committee from the Florida East Coast Automobile Association. The spokesman of the committee informed me that the good people of Daytona, which, of course, means members of the Florida East Coast Automobile Association, had come to the conclusion that, while it had been alleged that I carried a watch, they felt sure that it was not a split second gold stop watch.

It was the pleasure of the committee, therefore, the speaker said, to hand me a superbly engraved, imported split second stop watch, together with a very handsome chain, which ex-Mayor Bourgoyne generously provided. The watch had been purchased with the money subscribed by my good friends of Daytona. The present represented a cost to them to express their kindly feelings for me of many hundred dollars. When it is known that my fellow members of Florida East Coast Automobile Association had besides this gone down in their pockets and raised \$5,000 to provide for the expenses of the tournament, which included erecting the 15 miles of double wire and poles, you see what a sacrifice they had made in my behalf, and that if anything could, made me even more appreciative of their thoughtfulness and generosity. I feel sure that the tick of this watch of mine is no more true than the heart-beats of my good friends in Daytona who gave it to me, and I will retain it as a souvenir of their good will until time marks the stop of my own heart beats.



Nothing ever had to stand for more faults that were really not its own than the pneumatic tire. Take the one thing of determining what is the right degree of inflation and how many tire users have even the slightest idea of how to correctly determine this. Tires should be given a degree of inflation depending on their size and the weight they have to carry. The requisite pressure necessarily covers a pretty wide range—all the way from 50 to 80 pounds to the square inch. Take a touring car weighing in the neighborhood of 1,200 pounds,

carrying four passengers, and assuming the weight to be equally distributed over the four wheels, the correct pressure would be about 50 pounds to the square inch. To determine the distribution of the weight the car should be run with the front wheels only on a scale and the weight taken with its ordinary load, and then the back wheels should be similarly treated. Afterwards the car should be weighed complete. The back and front weights should total the same. As a good rough test, take the spokes of the wheel and move them to and from you. If the tire rolls materially under this treatment, you will know that more pressure is wanted.



For some reason or another this whole Florida affair seems to have completely warped a lot of people's judgment. From the beginning, when the editor of one trade paper wanted a committee appointed to go South and investigate the beach to determine how great was the danger of the sand finding lodgment in the carbureters of the racing vehicles down to the above mentioned inuendo against Mr. Vanderbilt a whole lot of people seem to have gone clean off the handle. No more perfect example of this could be found than the ill-advised action of M. Charley, he of the beard and the biague, the man who says he controls the sale of the famous Mercedes and comes mighty near making good on his claim. Now this same M. Charley had never seen the Ormond beach, and he knew no more about it or its record-making capacity than the average Frenchman ever knows of anything which is out of sight of the arch

de triumph, yet when the press dispatches announced that Mr. Vanderbilt, with one of M. Charley's own Mercedes, had been timed by a French clock and the officials of America's National Automobile Association had made a mile in 39 seconds, M. Charley promptly allowed himself to be quoted in the *Herald* as not believing the performance to be possible. Just why M. Charley had his doubts, further than because no Frenchman had ever in France been able to go so fast, no one but M. Charley knows, and he has not told anyone. Good business, to say nothing of good breeding, should have made M. Charley discreetly silent in this matter, but apparently his overweening desire to see his name in print was too overpowering for M. Charley to resist, since his ill-advised questioning of a performance which far more than he, is and was beyond any suspicion.



The Virginia Beach races, or rather proposed races there, should be encouraged, as should all things which tend to promote the use of automobiles, which, of course, includes the building of good roads. During the Automobile Show in Madison Square Garden, Mr. James S. Groves came to New York to have a talk with me in regard to a possible meet on the Virginia beach. I promised Mr. Groves to look at the beach and let him know whether it would serve for racing purposes, but in the mean time the affair was placed in other hands.

In any event, no matter what is done at Virginia Beach, it will not conflict with the Ormond-Daytona Annual Tournament, as there is no other beach outside of California where a winter tournament

could be given, with the possible exception of the one at Galveston, Texas, which beach is, in my opinion, the next best one to Ormond-Daytona, although I must admit I have never seen the Virginia beach.

That makes no difference, however, and I hope that the claims of Virginia Beach will be made good, but when it comes to comparing it favorably with that of Florida, I prefer to rely upon experts like James L. Breese, who has driven over both courses, and after doing so emphatically maintains that the Virginia one is many seconds slower than the Ormond-Daytona beach. Virginia Beach will, of course, be *the* beach if a driver can negotiate a mile over it in better than 39 seconds; otherwise it will not be sought after as a speed ground. It may, however, do for long races of the endurance order. It must be remembered that there is no patent on beaches, and the more and the speedier ones that are found the better it is for both the sport and the trade. If the Virginia course is what its advocates maintain it is, it will be an excellent place for spring and fall tournaments, since the short journey from New York will operate very materially in its favor. I am proud of having been fortunate enough to have been the originator of the beach-racing excitement, and just to show that I am not entirely a man of a single idea, I will have something else in a few days to announce which I believe will create quite as much interest as the Ormond-Daytona races have. There will be no patent on this new idea, and imitators are therefore cordially invited to help themselves in an imitative way.

Speaking of elimination trials and the Gordon Bennett race, which the French very properly call the Coupe Internationale, I am in receipt of a letter from England's greatest driver, Charles Jar-

rott, of Jarrott & Letts, Limited, London. Like all Jarrott letters, and I have been favored with many of them during the past few months, it is a very interesting communication. Mr. Jarrott starts out with saying: "I must compliment you on the splendid manner in which you are booming the Florida races. We see something every day in the papers over here, concerning what Vanderbilt or somebody else is going to do at them. Judging from the number of entries you have, it is an assured success."



Mr. Jarrott then goes on to say: "I have been reading with the greatest interest the *AUTOMOBILE MAGAZINE* and your scathing article on the 'slaughter of the innocents.' No doubt you have given the truth in a very unpalatable form, and you are hitting them very hard. However, there is nothing like being honest, and those of us over here who have been through the game know that every word of yours is right." This is praise, indeed, Sir Hubert! I have always maintained that Charles Jarrott is not only a great driver, but he is also about the most intelligent automobilist I met in Europe. Mr. Jarrott calls my attention to something else which to me is a surprise. What Mr. Jarrott says will cause much comment, but I can assure my readers that his word can be taken without question. He says: "There is one point on which I would like to correct you, and that is in regard to the marvelous sums of money we are supposed to make when we get up a race. As an instance of this, I may tell you that, so far as I was concerned in the Gordon Bennett race, I bought my car and paid for it, and the man who sold it to me made a profit on it

from the manufacturer. My expenses in Ireland were paid by myself, as were also the expenses of my mechanic (Note here, Mr. Jarrott calls him a mechanic, not a chauffeur, or mechanician), and the special men I sent over of my own. Moreover, I had absolutely no arrangement whatever, if I had won the race. Probably I might have reaped much glory, but not a penny, so far as remuneration for driving was concerned. There was one pure sportsman driving in the Gordon Bennett race, and that was myself."

Mr. Jarrott tells me that his firm has just brought out a new car which he thinks is the finest that has ever been produced in England. Naturally, the car is the result of Jarrott's ideas, since he tells me that he has had this sort of a car in his mind for three years. The car is made by the Crossley people, known as the greatest gas-engine makers in England, and the designer was Mr. Critchley. It will interest *AUTOMOBILE MAGAZINE* readers to know that both Messrs. Jarrott and Letts will be in the United States this summer. Of course, Mr. Jarrott while here will not fail to measure his racing prowess against our best drivers, and then you'll see what you'll see.



When I felt called upon recently to pass a few remarks about the rather questionable way some of the alleged importers were using to take advantage of their patrons, I was brought to task by at least two concerns, each one of whom seemed for some reason or another to think that I was aiming directly at them. Now, of course, I knew I was going to wing more than one duck

with that charge of shot, but it was nevertheless amusing to see how wrought up the concerns in question got, while they loudly denied that there was the least bit of truth in what I said. I am now collecting some facts in regard to some of the tricks played by these gentlemen upon their unsuspecting patrons. When I make these tricks public I am sure I will cause more fluttering in the importing duck yard than I did with my last shot, which really was intended only to frighten the game, not to kill it. My next broadside will be very much more deadly, I am sure.



Every man likes to be looked up to as "authority," no matter if his authorityship extend no further than how to cure chickens of the pip or yellow dogs of fleas. Being regarded as an "authority," however, has its drawbacks and annoyances, and as the writer of these pages I have frequently been embarrassed by the questions my correspondents have propounded in their assumption that I am authority upon everything connected with an automobile. Of course I am not, but I dare not confess that to misguided correspondents and so often they have me losing sleep trying to answer their queries. For example, I have a letter in front of me which asks me to decide which will win out in automobile nomenclature—the English "accumulator" or the American "storage battery"? Now watch me do the Solomon!

Each of the terms has much to recommend it. Each has a definite meaning, and one can hardly be in doubt as to what is meant by either. According to my way of thinking, "storage bat-

tery" has a little the better of it, since the "accumulator" might accumulate a number of things, whereas a battery brings at once to mind the cells all are so familiar with. At the same time it must be admitted that "accumulator" is more used in this country than it formerly was. A few years ago many people would not have known what the word meant, so little used was it. Now no one interested in automobiles would fail to know that storage battery was meant. But to come back to the original question and decide which of the two will eventually win out, modesty, not ignorance, forbids me to say.

The primary duty of any publication which aspires to either a present or a future is the informing and enlightening of its readers by the presentation of facts and by honest and fearless comment thereon. This duty, when well and faithfully performed, wins the confidence of the reading public and is the measure of the influence of a publication. Fidelity to the public whose servant it is and a rectitude of purpose not to be swerved by fear or favor or selfish interest are the only foundations upon which a journal can build a lasting and potent character, and in the automobile world as in private life, it is character that counts. Circulation is the incident and result of such high aims faithfully carried out, and with circulation comes business prosperity. But the foundation of all is character. Character attracts and retains the readers, and the advertiser seeks the readers. It is upon these facts and along these lines that the *AUTOMOBILE MAGAZINE* has been conducted for going on six years, during which time it has surely and safely built up a clientage, which can not be taken away from it by late comers in what is mistakenly thought to be the diamond field of class journalism.



If my correspondents who have favored me with a large numbers of letters recently or during the past thirty days are inclined to place me in the slow brigade, I beg to be excused on the plea that I was detained in Florida two weeks longer than I had intended to stay. I will make amends, however, now I am back where stenographers are more plentiful and inclination ditto.

In my mail I find a letter from S. F. Edge, of London, who holds the credit of being the only Englishman to win the Gordon Bennett trophy. Mr. Edge tells me that he will certainly make arrangements to come over to America next fall, and will possibly bring with him, in addition to his automobile for racing purposes, a racing motor boat as well. Speaking of the Florida tournament, Mr. Edge says: "I should certainly think Mr. Vanderbilt ought to do wonderfully with his 90 H. P. Mercedes. Our cars this year for the Gordon Bennett are pretty powerful—about 128 H. P. on the brake."

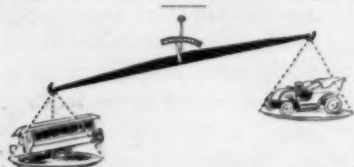
If you were going to buy a horse what would be the first part of his make up you would study? His legs, naturally. Now when you seek to purchase your horse power in a mechanical and condensed form make use of your horse sense and let the first thing you look to be the legs of your automobile—that is to say the running gear thereof. There is where strength counts and where weakness is fatal. As a matter of fact, strong wheels, axles and springs make the best life insurance policy I know of. As long as they hold together nothing very serious can happen to the

passengers unless the car runs into something. A few extra pounds judiciously distributed at these points will put the matter beyond any doubt. So, whenever I see an automobile that shows any weakness at these points I always think how foolish the designer was to skimp there, and how much more foolish anyone would be to buy such a conveyance. Better add a little more weight and be sure. No one minds fifty or 100 pounds extra, so what difference does it make?



I see that General Grosvenor, a gentleman more famous for his very peculiar literary affiliations than for his statesmanship, has declared in Congress, of which he is a member, that automobiles have killed and maimed many persons and have practically driven the horse from the streets of Washington. Of course everyone knows that when General Grosvenor makes any statement that from the mere fact of his having made it it thereby becomes the truth, no matter what it might be if others said it, yet even so, when I was in Washington a couple of weeks ago, I saw quite a number of quadrupeds upon the streets, which I am sure their owners mistakenly thought were horses, and which certainly looked to me as though that was what they were. At the same time I remarked, and even commented thereon, that for a nation's capital and one with such magnificently paved streets, too, I never saw a city where in there were so few automobiles to be seen as there were in Washington. In all this, of course, as I differ with the great Grosvenor I cannot be either

truthful or worthy of belief, and I only make the statements here to show how even I, an otherwise rather careful observer, can go wrong when it comes to dealing with this automobile question.



While Grosvenor may be authority for the deadliness of automobiles in Washington, Commissioner McAdoo is an unquestionable authority for what happens in that direction here. It is therefore interesting to compare Mr. Grosvenor's unsupported assertions with Commissioner McAdoo's official facts. From the police reports of accidents on New York's streets for the month of January last year and for the same month this year, the following interesting table of facts is made public:

	1903.	1904.
Collisions with cars	39	30
Struck by cars	39	19
Struck by trucks, cabs, etc.	31	41
Run over by trucks, etc.	18	19
Fell from cars	18	12
Runaways	16	13
Fell getting off cars	13	8
Fell getting on cars	9	10
Run over by cars	7	0
Struck by automobiles	6	1
Collisions, trucks, cabs, etc.	3	2
Collisions with "L" pillars	3	1
Run into obstructions	3	1
Struck by bicycles	2	0
Collapsed temporary bridge	1	0
Collision with automobiles	1	1
Collisions of bicycles	1	0
Run over by automobiles	1	0
Thrown from wagon stealing ride ..	1	0
Scaffold struck by truck	0	1
Thrown from bicycle into excavation ..	1	0
Total	213	159

I commend the careful attention of Mr. Grosvenor to a study of Commissioner McAdoo's figures. Among other things he will learn from them is that the automobile danger is largely a myth, created by such unthinking people as himself. For example, while six people were struck by automobiles during the month of January last year, but one suffered from the same cause this year. Surely that does not look as though the automobile destroyer was becoming

worse. Again, while in last January one person was actually run over by an automobile, in this January not a single citizen was so injured. In fact, McAdoo's figures show that in New York a man is 30 times more likely to suffer from a collision with a car, and 41 times more likely to be run over by a truck than he is to experience either misfortune from an automobile. To most men, such at least as are not Grosvenors, these facts would cause them to temper their theories a bit, but to the Grosvenors of the world facts are as nought, and when they are brought face to face therewith they act only as inciters for further tirades.

Speaking editorially, and therefore, I presume, authoritatively, for "the sporting fraternity," i. e., the brotherhood of those engaged in gaming or gambling for money (see Standard Dictionary), a publication known to some of its non-admirers as the *Useless Age*, declares that the gambling brotherhood is "wondering whether he (Mr. Vanderbilt) is under contract with the Mercedes people or not." To remove the cause of this "wondering" on the part of the gambling brotherhood, for whom the editor apparently speaks, I betray no confidences and proclaim no superior knowledge in saying that Mr. Vanderbilt, strange as it may seem to the editor and to his gambling constituents, is not under contract to any automobile manufacturer, and in the present state of his finances and sportsmanship is not at all likely to be. In the meantime it is a sad reflection upon the editorial capacity of the poor old aged one that none in its employ had think-tank capacity enough to know this, and to have, in consequence, prevented its editorial pages from being given over to such puerile reflections upon the sportsmanship of the one American driver who has done more for the good repute of American racing than all the readers, editors and gambling confraternities of the *Useless Age* combined.

THE SENATOR.